



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

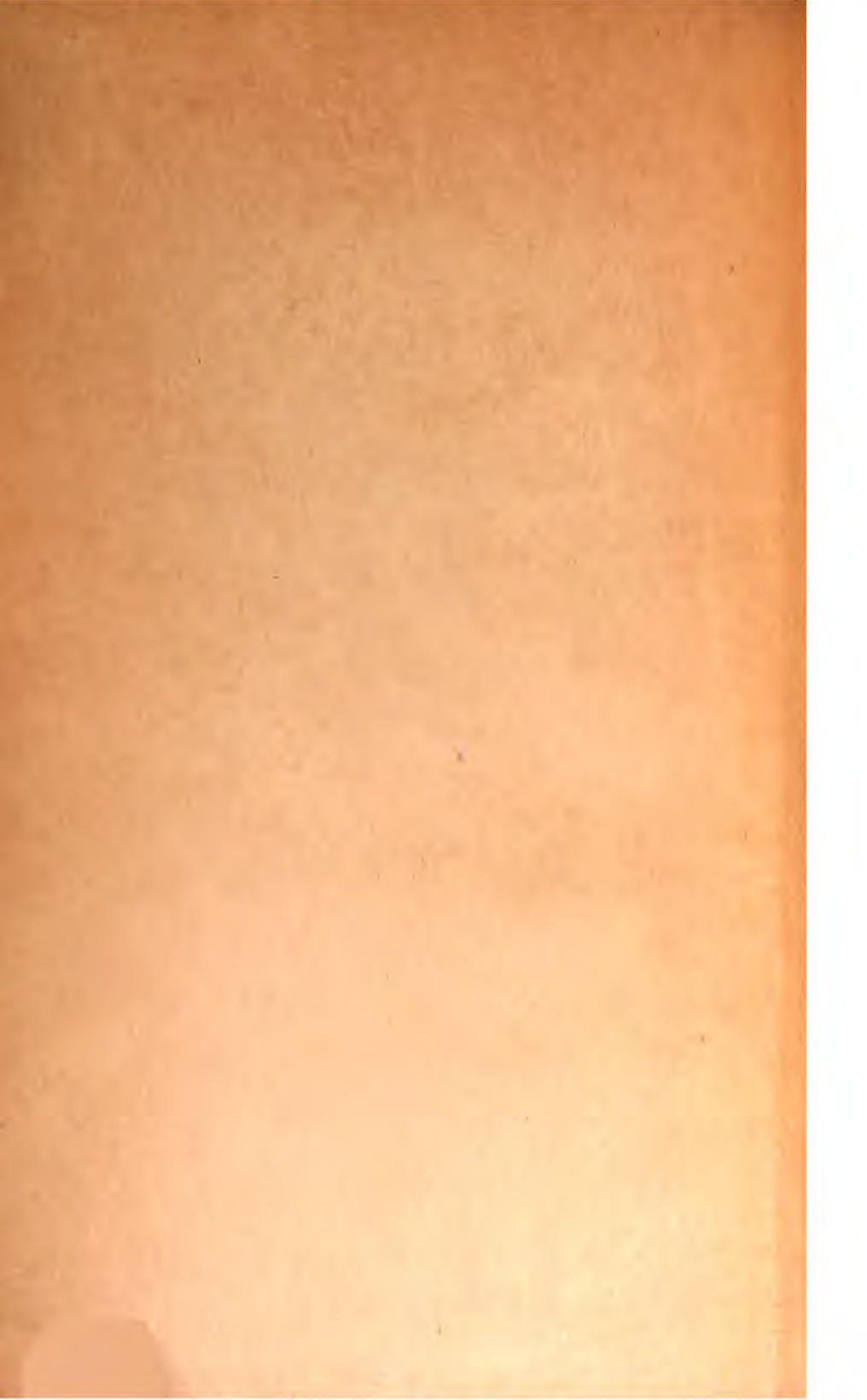
- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>









TWENTY-THIRD BIENNIAL REPORT

OF THE



STATE BOARD OF HEALTH

OF

CALIFORNIA

FOR THE

Fiscal Years from July 1, 1912, to June 30, 1914



**CALIFORNIA
STATE PRINTING OFFICE
1914**



TWENTY-THIRD BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

CALIFORNIA

FOR THE

Fiscal Years from July 1, 1912, to June 30, 1914



**CALIFORNIA
STATE PRINTING OFFICE
1914**

THE CALIFORNIA STATE BOARD OF HEALTH.

374919 MEMBERSHIP OF THE BOARD.

MARTIN REGENSBURGER, M.D., *President*..... San Francisco
JAMES H. PARKINSON, M.D., *Vice-President*..... Sacramento.
DONALD H. CURRIE, M.D., *Secretary and Executive Officer*..... Sacramento.
WALLACE A. BRIGGS, M.D. Sacramento.
W. LEMOYNE WILLS, M.D. Los Angeles.
O. STANSBURY, M.D. Chico.
EDWARD F. GLASER, M.D. San Francisco

ADMINISTRATIVE ORGANIZATION.

1. **Bureau of Administration.**
JOHN F. LEINEN, Director and Assistant to the Secretary.
Divisions: Correspondence and Accounts; Permits, Complaints, and Sanitary Reports; Legal Opinions and Prosecutions; Publications
2. **Bureau of Vital Statistics.**
GEORGE D. LESLIE, PH.B., Director and Statistician.
Divisions: Births, Marriages, Deaths; Morbidity Returns.
3. **Bureau of Foods and Drugs.**
MYER E. JAFFA, M.S., Director.
Divisions: Division of Inspections; Division of Laboratory Examinations
Division of Food and Drug Standards.
4. **Bureau of Hygienic Laboratory.**
WILBUR A. SAWYER, M.D., Director.
Divisions: Biological Examinations; Preventive Therapeutics; Epidemic
logical Investigations.
5. **Bureau of Tuberculosis.**
BURT F. HOWARD, M.D., Director.
Divisions: Inspection, Supervision and Rating of Institutions; Registration
of Cases.
6. **Bureau of Registration of Nurses.**
ANNA C. JAMMÉ, R.N., Director.
Divisions: Examination and Registration of Nurses; Inspection of Hospital
and Training Schools.
7. **Bureau of Sanitary Engineering.**
CHARLES GILMAN HYDE, C.E., Acting Director.
Divisions: Sewage Disposal; Water Supplies; Camp Sanitation.

SPECIAL OFFICERS OF THE BOARD.

LOUIS H. ROSEBERRY, A.B.
Attorney for the Board..... Security Savings Bank Building, Los Angeles
CHARLES GILMAN HYDE, C.E.
Consulting Engineer for the Board..... University of California
F. F. GUNDRUM, M.D.
Division Bacteriologist..... Inverness Building, Sacramento
W. W. CROSS, M.D.
Division Bacteriologist..... Patterson Block, Fresno, California
WALTER V. BREM, M.D.
Division Bacteriologist..... Brockman Building, Los Angeles

LETTER OF TRANSMITTAL.

OFFICE OF CALIFORNIA STATE BOARD OF HEALTH,
SACRAMENTO, July 15, 1914.

To His Excellency, HIRAM W. JOHNSON,
Governor of California.

DEAR SIR: In accordance with the state law, I herewith transmit to you the Twenty-third Biennial Report of the State Board of Health of California for the sixty-fourth and sixty-fifth fiscal years.

Respectfully submitted.

DONALD H. CURRIE,
Secretary of the State Board of Health.

CONTENTS.

	PAGE.
LETTER OF TRANSMITTAL.....	iii
REPORT OF THE SECRETARY.....	1
Plague—Smallpox—Leprosy—Yellow Fever—Asiatic Cholera—Typhoid Fever—Rabies—Hookworm—Diphtheria.	
REPORT OF THE BUREAU OF ADMINISTRATION.....	8
Report of Field Operations Under the Joint Supervision of the State Board of Health and the United State Public Health Service—Sanitary inspections—Financial Statement.	
REPORT OF THE BUREAU OF VITAL STATISTICS.....	22
I. Summary of Statistics: 1913 and 1912.....	22
II. Statistics of Births: 1913 and 1912.....	51
III. Statistics of Deaths: 1913 and 1912.....	81
IV. Statistics of Marriages: 1913 and 1912.....	196
V. Morbidity Reports: 1913.....	240
REPORT OF THE BUREAU OF FOODS AND DRUGS.....	247
General Report—Laboratory Work—Tables of Samples Examined—Summary of Analytical Work—General Summary—Conclusions and Recommendations.	
REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY.....	289
Development of the Laboratory—Division of Biologic Examinations—Branch Laboratories—Depositories for Mailing Outfits—Division of Preventive Therapeutics—Division of Epidemiological Investigations—Research—Instruction in Public Health—Laboratory Staff—Building and Equipment.	
REPORT OF THE BUREAU OF TUBERCULOSIS.....	319
Duties of the Director—County Hospitals—State Institutions—Private Charities—Registration—Tuberculosis Morbidity.	
REPORT OF THE BUREAU OF REGISTRATION OF NURSES.....	334
Registration—Inspection of Training Schools—Accrediting of Training Schools—Examination—Development.	

OUTLINE OF VITAL STATISTICS REPORT.

NOTE—The vital statistics are presented for calendar, instead of fiscal years, to correspond with the annual mortality reports of the Federal Census Bureau.

	PAGE.
I. SUMMARY OF STATISTICS: 1913 AND 1912	22-50
Synopsis	22
Birth, death and marriage totals.....	22
Birth and death totals compared.....	23
Birth, death and marriage rates.....	23
Introduction	24
Sources of information.....	24
Indexing of records.....	24
Tabulation of statistics.....	25
Geographic divisions.....	26
Birth, Death and Marriage Totals.....	27
The State	27
Geographic divisions	28
Counties	30
Cities	32
Birth and Death Totals Compared.....	34
Geographic divisions.....	34
Cities	35
Birth, Death and Marriage Rates.....	37
Population estimates.....	37
Geographic divisions.....	38
Counties	41
Cities	45
II. STATISTICS OF BIRTHS: 1913 AND 1912	51-80
Synopsis	51
Births by sex, race and maternal nativity.....	51
Nativity of brides and mothers.....	51
Births by Sex, Race and Maternal Nativity.....	52
Sex	52
Race	53
Sex and race.....	55
Nativity of white mothers.....	56
Nativity of Brides and Mothers.....	60
Sex and nativity of white mothers.....	60
Nativity of white brides and mothers.....	61
Nativity of single white brides and white mothers.....	64
Conclusion	68
III. STATISTICS OF DEATHS: 1913 AND 1912	81-195
Synopsis	81
Causes of death.....	81
Geographic divisions.....	81
Tuberculosis	82
Sex	83
Race	83
Nativity	83
Age periods.....	84
Marital condition of decedents.....	85
Occupations and causes of death.....	86
Causes of Death.....	86
The State.....	86
Main geographic divisions	91
Minor geographic divisions.....	92
Urban and rural districts.....	97
Cities and rest of State.....	100

III. STATISTICS OF DEATHS: 1913 AND 1912—Continued.

	PAGE.
Individual counties.....	102
Individual cities.....	103
Tuberculosis in California.....	103
The State.....	103
Geographic divisions.....	104
Cities.....	105
Length of residence (geographic divisions).....	107
Length of residence (cities).....	110
Southern California.....	113
Month of death.....	114
Conclusion.....	114
Deaths by Sex, Race, Nativity and Age Periods.....	115
Sex.....	115
Sex and cause of death.....	116
Race.....	117
Race and cause of death.....	118
Nativity of white decedents.....	120
Nativity and cause of death.....	122
Age periods.....	124
Age and cause of death.....	129
Marital Condition of Decedents.....	134
Geographic divisions.....	134
Causes of death.....	137
Occupations and Causes of Death.....	138
Occupations.....	138
Main kinds of occupation.....	139
Causes of death and specific occupations.....	139

IV. STATISTICS OF MARRIAGES: 1913 AND 1912.....196-239

Synopsis.....	196
General marriage statistics.....	196
Nativity of California brides.....	197
General Marriage Statistics.....	199
Number in order.....	199
Status of grooms.....	202
Status of brides.....	205
Nativity of California Brides.....	209
Race and nativity.....	209
Status of white brides.....	212
Status of white brides (by nativity).....	214
Nativity of white brides.....	217
Nativity of white brides (by status).....	220
Conclusion.....	223

V. MORBIDITY REPORTS: 1913.....240-246

Smallpox.....	240
Typhoid fever.....	240
Tuberculosis.....	241
Whooping-cough.....	241
Diphtheria.....	241
Scarlet fever.....	241
Rabies.....	241
Poliomyelitis.....	241
Pellagra.....	241
Leprosy.....	241
Trachoma.....	241
Cerebrospinal meningitis (epidemic).....	241
Chickenpox.....	241
Measles.....	241
Mumps.....	241

LIST OF STATISTICAL TABLES.

I. Summary.

TABLE No.	PAGE.
1. Main and minor geographic divisions of California, with counties included in each.....	26
2. Birth, death and marriage totals, with increase and rate per 1,000 population, for California: 1906 to 1913.....	27
3. Birth, death and marriage totals, with increase, for geographic divisions: 1913 and 1912.....	29
4. Birth, death and marriage totals, with increase, for counties: 1913 and 1912.....	31
5. Birth and death totals, with increase, for individual cities and rest of state: 1913 and 1912.....	33
6. Birth and death totals compared, for geographic divisions: 1913 and 1912.....	35
7. Birth and death totals compared, for individual cities and rest of state: 1913 and 1912.....	36
8. Estimated midyear population, births, deaths and marriages, and rates per 1,000 population, for geographic divisions: 1913 and 1912.....	39
9. Estimated midyear population, births, deaths and marriages, and rates per 1,000 population, for counties: 1913 and 1912.....	42-43
10. Estimated midyear population, births and deaths, and rates per 1,000 population, for individual cities and rest of state: 1913 and 1912.....	46-47
11. Deaths reported for registration districts (cities, towns and rural parts of counties): 1913 and 1912.....	49-50

II. Births.

1. Births classified by sex, with per cents, for geographic divisions: 1913 and 1912.....	52
2. Births classified by sex, with per cents, for cities and rest of state: 1913 and 1912.....	55
3. Births classified by race, with per cent white, for geographic divisions: 1913 and 1912.....	54
4. Births classified by race, with per cent white, for cities and rest of state: 1913 and 1912.....	55
5. Births classified by sex and race, with per cents by sex, for cities and rest of state: 1913 and 1912.....	56
6. White mothers classified by nativity, with per cents, for geographic divisions: 1913 and 1912.....	57
7. White mothers classified by nativity, with per cents, for cities and rest of state: 1913 and 1912.....	59
8. Per cent distribution, by sex, of white children with mothers classified by nativity, for geographic divisions: 1913 and 1912.....	60
9. Per cent distribution, by sex, of white children with mothers classified by nativity, for cities and rest of state: 1913 and 1912.....	61
10. Per cent distribution, by nativity, of white brides and white mothers, for geographic divisions: 1913 and 1912.....	62
11. Comparison of per cent distribution, by nativity, of white brides and white mothers, for geographic divisions: 1913 and 1912.....	63
12. Per cent distribution, by nativity, of single white brides and white mothers, for geographic divisions: 1913 and 1912.....	65
13. Comparison of per cent distribution, by nativity, of single white brides and white mothers, for geographic divisions: 1913 and 1912.....	67
14. Births classified by sex and race, and by sex and nativity of mothers, for counties: 1913.....	70-71
15. Births classified by sex and race, and by sex and nativity of mothers, for counties: 1912.....	72-73

TABLE
No.

PAGE.

16. Births classified by sex and race, and by sex and nativity of mothers, for cities: 1913-----	74-75
17. Births classified by sex and race, and by sex and nativity of mothers, for cities: 1912-----	76-77
18. Births classified by sex, race and nativity of mothers, with per cents by sex, for geographic divisions: 1913 and 1912-----	78-79
19. Births classified by sex, race and nativity of mothers, with per cents by sex, for cities and rest of state: 1913 and 1912-----	80

III. Deaths.

1. Deaths from certain principal causes, with proportion per 1,000 total deaths and death rate per 100,000 population, for California: 1909 to 1913-----	88-89
2. Deaths from certain principal causes, with proportion per 1,000 total deaths, for main geographic divisions: 1913 and 1912-----	93
3. Deaths from certain principal causes, with proportion per 1,000 total deaths, for minor geographic divisions: 1913 and 1912-----	94-95
4. Deaths from certain principal causes with proportion per 1,000 total deaths, for metropolitan area and rural counties of Northern and Central California: 1913 and 1912-----	98
5. Deaths from certain principal causes, with proportion per 1,000 total deaths, for freeholders' charter cities and rest of state: 1913 and 1912-----	101
6. Number and per cent of deaths from tuberculosis, for geographic divisions: 1913 and 1912-----	105
7. Number and per cent of deaths from tuberculosis, for individual cities and rest of state: 1913 and 1912-----	106
8. Deaths from tuberculosis classified by length of residence in California, with per cents, for geographic divisions: 1913 and 1912-----	108
9. Deaths from tuberculosis classified by length of residence in California, with per cents, for individual cities and rest of state: 1913 and 1912-----	111-112
10. Deaths from tuberculosis classified by length of residence (in months), with per cents, for Southern California: 1913 and 1912-----	113
11. Number and per cent of deaths occurring each month from tuberculosis, for California: 1913 and 1912-----	114
12. Deaths classified by sex, with per cents, for geographic divisions: 1913 and 1912-----	115
13. Deaths from certain principal causes classified by sex, with per cents, for California: 1913 and 1912-----	116
14. Deaths classified by race, with per cent white, for geographic divisions: 1913 and 1912-----	117
15. Deaths from certain principal causes classified by race, with per cent white, for California: 1913 and 1912-----	119
16. White decedents classified by nativity, with per cents, for geographic divisions: 1913 and 1912-----	121
17. White decedents dying from certain principal causes classified by nativity, with per cents, for California: 1913 and 1912-----	123
18. Deaths classified by age periods, for geographic divisions: 1913 and 1912-----	125
19. Per cent distribution of deaths, by age periods, for geographic divisions: 1913 and 1912-----	127
20. Deaths from certain principal causes classified by age periods, for California: 1913 and 1912-----	130-131
21. Per cent distribution, by age periods, of deaths from certain principal causes, for California: 1913 and 1912-----	132

TABLE
No.

PAGE.

22.	Deaths of males and females 15 years and over classified by marital condition, with per cents, for geographic divisions: 1913-----	135
23.	Deaths from selected causes of males and females 15 years and over classified by marital condition, with per cents, for California: 1913-----	137
24.	Deaths 15 years and over classified by sex and occupation, with per cents by sex, for California: 1913 and 1912-----	138
25.	Deaths of males 15 years and over engaged in gainful occupations, classified by kind of occupation, with per cents, for California: 1913 and 1912-----	139
26.	Per cent distribution, by selected causes, of deaths of males and females 15 years and over classified by occupation, for California: 1913 and 1912-----	140-143
27.	Deaths from each specified disease and class of diseases, classified by sex, race, nativity, and age periods, for California: 1913-----	148-157
28.	Deaths from each specified disease and class of diseases, classified by sex, race, nativity, and age periods, for California: 1912-----	158-167
29.	Deaths from certain principal causes, with proportion per 1,000 total deaths, for counties arranged geographically: 1913-----	168-173
30.	Deaths from certain principal causes, with proportion per 1,000 total deaths, for counties arranged geographically: 1912-----	174-179
31.	Deaths from certain principal causes, with proportion per 1,000 total deaths, for freeholders' charter cities arranged geographically: 1913-----	180-183
32.	Deaths from certain principal causes, with proportion per 1,000 total deaths, for freeholders' charter cities arranged geographically: 1912-----	184-187
33.	Deaths of males and females 15 years and over from selected causes, classified by occupation, with per cents, for California: 1913-----	188-191
34.	Deaths of males and females 15 years and over from selected causes, classified by occupation, with per cents, for California: 1912-----	192-195

IV. Marriages.

1.	Marriages classified by number in order, with per cents, for geographic divisions: 1913 and 1912-----	199
2.	Grooms classified by marital condition, with per cents, for geographic divisions: 1913 and 1912-----	202
3.	Brides classified by marital condition, with per cents, for geographic divisions: 1913 and 1912-----	205
4.	Brides classified by race, nativity, and marital condition, with per cent distribution by marital condition, for California: 1913 and 1912-----	209
5.	White brides classified by marital condition, with per cents, for geographic divisions: 1913 and 1912-----	212
6.	Per cent distribution, by marital condition, of white brides classified by nativity, for geographic divisions: 1913 and 1912-----	214
7.	White brides classified by nativity, with per cents, for geographic divisions: 1913 and 1912-----	217
8.	Per cent distribution, by nativity, of white brides classified by marital condition, for geographic divisions: 1913 and 1912-----	220
9.	Marriages classified by number in order and marital condition of parties, with per cents, for counties: 1913-----	224-225
10.	Marriages classified by number in order and marital condition of parties, with per cents, for counties: 1912-----	226-227
11.	Brides classified by race, nativity, and marital condition, with per cent distribution by marital condition, for geographic divisions: 1913-----	228-229
12.	Brides classified by race, nativity, and marital condition, with per cent distribution by marital condition, for geographic divisions: 1912-----	230-231

TABLE

TABLE No.	PAGE.
13. White brides classified by marital condition and nativity, with per cent distribution by nativity, for geographic divisions: 1913.....	232
14. White brides classified by marital condition and nativity, with per cent distribution by nativity, for geographic divisions: 1912.....	233
15. Brides classified by race and nativity, with per cent distribution of white brides by nativity, for counties: 1913 and 1912.....	234-235
16. Brides classified by race, nativity, and marital condition, for counties: 1913	236-237
17. Brides classified by race, nativity, and marital condition, for counties: 1912	238-239

V. Morbidity Reports.

GROUP I. Communicable Diseases. Seasonal prevalence and mortality during 1913, by months.....	243
GROUP II. Communicable Diseases. Seasonal prevalence during 1913, by months	243
Typhoid Fever. Number of cases reported in California during 1913, by months	244
Smallpox. Number of cases reported in California during 1913, by months....	244
Poliomyelitis (Infantile Paralysis). Number of cases reported in California during 1913, by months.....	246
Cerebro Spinal Meningitis (Epidemic). Number of cases reported in California during 1913, by months.....	246

REPORT OF THE SECRETARY.

The death rates in California during the past two years, and the morbidity reports during the same period of time, indicate that there has been a general decrease in the prevalence and distribution of most of the communicable diseases. The opening of the Panama Canal would lead to the supposition, however, that there may be an increase in the number of cases of communicable disease in the future. Since the morbidity and mortality reports for the past two years are presented in another portion of the Board's Twenty-second Biennial report, the Secretary desires to summarize the diseases that are most dangerous to California, and, therefore, those which have to be watched most carefully. I have, with this idea in view, passed in review the more dangerous communicable diseases, not only those that exist within the State, but those that exist in nearby countries, or at least in countries with which we have constant commercial intercourse, and it is the intention, in so far as space will permit, to consider each of these in a brief way, both from the standpoint of our apparent danger from them, as well as our best defense against them.

The list which I present below is not given in the order of their importance. In fact, their relative importance is a difficult matter to determine, but I have started out by considering five of the six diseases which the Federal Government protects us from through its quarantine stations and medical inspectors in foreign ports, and proceeded from this group to those diseases that, although preventable, are like the proverbial poor, "always with us."

PLAGUE.

A reference to the Public Health reports will show that from without we have Ecuador reporting cases of this disease, and from past history of that section and our knowledge of plague, it is safe to regard the whole west coast of South America as infected, and to also regard with considerable suspicion the west coast of Mexico, especially in the neighborhood of Mazatlan, which some ten years ago suffered from a severe outbreak. For reasons of safety we must consider that once plague is reported from a locality, unless it can be shown that considerable laboratory examination is being continually carried on with regular results, that locality must remain indefinitely under suspicion. In addition to these, the following foreign countries having traffic with America: the Philippines, Australia, Hawaii, Java, certain Chinese and Japanese ports, are either constantly reported as being infected, or have been so reported in recent times.

The Public Health Service, through its quarantine offices in San Francisco and other California ports, is keeping close watch of this disease from foreign countries, and, therefore, this danger of future infection of California is reduced to a minimum.

When we leave the subject of plague in foreign countries, we must next consider an outbreak among rats in Seattle, Washington. We there find that measures are being taken under the supervision of the United States Public Health Service for the protection of California ports; so, danger from that source is very slight. There are dangers, however, in the Northwest cities which had constant intercourse with

Seattle previous to the discovery of plague in that place. From las reports these places had not adopted systematic measures looking to the discovery of infected rats. These places must be regarded as real sources of danger, unfortunately; for until a city has examined its rats and reported some of them infected, the National Quarantine Station are not permitted to adopt measures on vessels arriving in California from such places, and therefore, these other parts of the Northwest must be considered as possible sources of danger to us.

In our own State we find that there has been no infection among ground squirrels reported for some time past. This fact would not ordinarily have great significance, because at this season of the year only adult squirrels are in existence. Most of these adults have been immunized by an annual spring outbreak that has been occurring for some years past, but this particular year, it is believed by Surgeon John D. Long, U. S. Public Health Service, in charge of this work, will mark the disappearance of the disease. He hopes to destroy all squirrels in the known infected zones of Contra Costa, Alameda, and Santa Clara counties, and by the first of July to complete his work in the remaining infected counties of Stanislaus, Merced, San Joaquin, San Benito, Monterey, and Santa Cruz. This infection of ground squirrels, so far as we can believe from circumstantial evidence, spread from an outbreak among rats at the Port Costa grain wharves in 1903 and swept from there to all the counties mentioned in the preceding list. While it remains it is a constant menace to the people of the infected districts, and it is to be hoped that its eradication will occur at an early date.

SMALLPOX.

The dangers of this disease from foreign countries and adjoining states is relatively prevalent compared to the dangers of the spread from foci that exist within the state. While no extensive outbreaks have occurred recently, the disease is widespread in this state, and that fact together with apparently growing anti-vaccination sentiment in some sections, makes this disease one of the more serious dangers to the State's health. Fortunately, as in other parts of the United States since late in the nineties, the type has been mild in character, and the mortality correspondingly low. It is not safe, however, to regard the mildness of type as a permanent feature of the disease. Vaccination, the only dependable measure against this danger, is simple to perform and compared to the dangers of the mildest type of this disease, harmless.

Anti-vaccination sentiment, for the most part, is based upon three fundamental mistakes:

1. Ignorance of or inability to weigh the evidence presented by history; that in the pre-vaccination period of our own race or the more recent history of uncivilized people, before vaccination was performed practically all people born had smallpox and of these one in four died. While on the other hand, since this great discovery was made, we vaccinated communities never experience a serious outbreak of the disease.

2. The belief that climate, mode of living or general sanitation can prevent the spread of this disease among the unvaccinated; there is no reason to believe that our better mode of life has any influence on the communicability of this disease.

3. That vaccination is dangerous; to this we may say that there is no potent drug used in medicine, no surgical procedure, that has not caused death, and so, if we search the literature of vaccination, we find death from it also; but, what is this mortality compared to the mortality of smallpox? It is difficult to answer this question, but it is certain that it is not more than as 1 is to 10,000, and yet, in spite of this, we find persons comparing the dangers of one to the dangers of the other!

To illustrate the peculiar fear that some have of this measure in comparison with other more serious procedures, the writer doubts that those who dread vaccination would have the least hesitation in allowing any one of the other three below mentioned measures performed, if their condition demanded it: the removal of tonsils, the administration of a hypodermic injection, or the placing of a hot water bottle at the feet; yet, the writer has observed one death from each of the above procedures—the first from infection, the second from shock, the last from scalding. During the same time that these were observed, although he has seen thousands vaccinated, he has never seen the loss of life or limb result. It is to be hoped that some day, some one will start a *pro*-vaccination society, and if such an organization employs one half the zeal in searching for proof that vaccination has done inestimable good and very little harm that the anti-vaccinationists have employed in unearthing the few fatal results in history, there would remain very few unvaccinated persons among the logical-minded members of a community.

Until some such movement is launched to offset this dangerous and foolish popular error, ours must continue to be the only civilized country of the world that does not uniformly vaccinate its children.

LEPROSY.

There has never been any great amount of this disease in California. At any given moment 30 or less cases are to be found in the isolation hospitals of the State, and most of these are imported cases, or, at least, those who have acquired their infection in other countries.

Undoubtedly, some cases have acquired their infection here. Without the literature available at this moment the writer recalls two cases of undoubted California origin, reported by Montgomery of San Francisco; but while few cases *have* originated here, there is no doubt that infection can be acquired anywhere, provided a sufficient number of persons come in intimate contact with lepers. The danger of this disease here is in the influx of persons from certain other countries; notably, China, Japan, Hawaii and Mexico. The incidence of this disease is high among all the people just mentioned and each of these nations sends frequent visitors to our shores. Such persons, of course, are inspected at our National Quarantine Stations, but often it is impossible to detect cases in their early stages. Physicians throughout the State should bear these facts in mind and keep a lookout for suspicious symptoms among those people from infected areas, who come to them for treatment. By this means, many cases will be detected that might otherwise escape and infect others.

At a meeting of the Board on February 7, 1914, a resolution was passed which made leprosy a quarantinable disease under the laws of the State.

YELLOW FEVER.

Cases of this disease are frequently reported from the west coast of Mexico and from the equatorial and subtropical portions of South America's west coast. We have direct traffic from both of these areas and several vessels have entered San Francisco in the last ten or fifteen years having had cases of this disease during their voyages. Owing to the length of the voyage from most parts of the areas mentioned, and the efficient quarantine inspections of California ports upon entering, the chances of cases of this disease reaching shore are very small. To further add to our security is the fact, according to Professor Herms of the University of California, that so far as the University has authoritative information, the yellow fever mosquito, *Stegomyia colopus*, does not exist in California. This is a most favorable circumstance, but it also points out the importance of keeping this mosquito from entering in the future. It is true that most of our maritime traffic from countries having this mosquito, notably Mexico and Hawaii, enters at the port of San Francisco. The weather at that port is usually too cold to be conducive to the mosquito flying ashore from its harbor on the vessel, but there are days that are warm enough to permit of such flight and there is little reason to doubt that in the interior of the State there are many localities where this mosquito would thrive in the same way that the *Anopheles* and *Culex* do.

In adopting precautions to prevent California from becoming infested with this species, we must also remember that Louisiana and Texas, only a few days removed from us, have this mosquito in great abundance and if once introduced on a western bound Pullman car, it would be likely to become established here. We believe this subject is important enough to be taken up with the Federal authorities to make it part of their new inspection of coaches.

ASIATIC CHOLERA.

From our public health reports it will be seen at present that, with the exception of the extensive outbreak of this disease at the site of the recent Turko-Balkan war and nearby countries, no great prevalence of the disease is recorded.

The countries mentioned are too remote at present to be of importance to us, but inasmuch as cholera carriers have been demonstrated to disseminate this virulent micro-organism for a period of sixty days or more, the outbreak in southeastern Europe may become of importance to us with the opening of the Panama Canal.

At present our only source of danger is from Asiatic ports, where, in certain countries, at least, the disease is epidemic.

Our quarantine stations do all in their power to protect us from this danger, including the systematic examination of the discharges of immigrants from cholera ports. But in spite of such precautions, owing to the difficulty of detecting some cholera carriers, it is possible for the disease to become introduced. "The jumps" this disease can make were shown in the Hawaiian outbreak of the spring of 1911, when cholera appeared in Honolulu, the nearest known cases being in Japan, ten to twelve days away by the fastest steamers.

The country which has, during ordinary times, made itself most secure against the spread of typhoid fever, is safest against the spread of cholera, should that disease once be introduced, and remote is o

danger from this disease at the present time. The extremely deadly nature of cholera makes an additional reason why we should do everything to prevent food and water supplies from being contaminated directly or indirectly by sewage.

TYPHOID FEVER.

Practically our only danger here is from the spread of the disease from existing foci; the imported cases are too rare to be of much relative importance. At this time of the year the chief danger lies in the contamination of streams from surface washing, incident to heavy rains, as well as the infection of ground waters by the same means. Later in the year the fly becomes an important factor, especially about insanitary camps, insanitary "health resorts" and other places where the fly is allowed to visit food supplies and cesspools, alternately, at such intervals as its fancy dictates.

Physicians, as well as the general public, should closely observe and report to their local health officers all pollution of streams. They should also report all insanitary stables where flies are bred (according to entomologists, 90 per cent of the common fly *musca domestica* breeds in such places) as well as cesspools and unprotected food supplies. Health officers are requested to report such conditions to this office, which will give its services freely in assisting them to abate such nuisances.

The Board has now employed Mr. E. T. Ross, of many years experience in the U. S. Public Health Service, as Sanitary Inspector. One of Mr. Ross' chief duties will be to cooperate with the health officers of the cities and counties in their efforts to abate nuisances which tend to spread typhoid fever. This office, working through its local health officers and Mr. Ross, intends to devote much attention to this important matter.

RABIES.

This subject has been too well covered by Dr. Sawyer's several reports for the Secretary to feel called upon to discuss it from any of its scientific aspects, but in passing this terrible, but at the same time preventable disease, the writer desires to make the following remarks:

This office regards the passage and enforcement of local ordinances requiring the muzzling of canines in infected districts of the utmost importance, and will support the efforts of the local health officers to the limit of its powers.

It is not intended here to enter into a discussion of the *need*; the evidence that the disease is prevalent among dogs in certain parts of California is sufficient to convince any tribunal within the borders of this State. Nor is it our intention to express an opinion as to whether it is better to legislate for the convenience of dogs or for the lives of children; we may feel called upon, if the occasion arise, to discuss this matter with the mother voters of infected districts at some later date—but not here. Nor, as a lover of dogs, will the writer here urge that it is better for the dogs to be inconvenienced than to die in horror. The Secretary will state, however, that if any county fails to protect its citizens from this disease, he will do all in his power to have the general laws of the State applied from the time the matter comes to his attention until the following meeting of the Board, and shall then recommend to

that body that such application be continued until the county has adopted a proper ordinance.

HOOKWORM.

A great deal has been said in recent years of the danger of this State becoming infested by the hookworm parasite. While this has not been borne out, probably, by data that we have at present, we must bear in mind that we possess a large area of sandy soil similar to that in which, in other countries, experience has demonstrated this disease is especially prone to spread. We also have a large mining population which is notably susceptible to this parasite.

With these conditions favoring its development and spread, once thoroughly introduced, we must also remember that we have at present immigrants from Asia, where the disease is very common, and Portuguese colonists showing a high percentage of infection, coming to us after a short stay in the Hawaiian Islands.

Later, when the canal opens, we will have an influx of immigrants from the Mediterranean countries, where the parasite is common. Besides these foreign sources of infection, we have constant railway communication with many areas of our Southern States, where the percentage of infected persons is very high.

Up to the present there has been no great influx of persons from these districts of the classes that are ordinarily infected (poorer members of farming communities), but we do have some, especially negroes, and they may play a part in the introduction of the parasite.

With these ideas in view, this office has requested that Professor C. W. Stiles visit the State at his earliest convenience, and make a special survey from a hookworm infection standpoint.

In connection with this subject, the foreign translation from the Italian is of interest to the health authorities of the State.

"The Measures Against Hookworm in Italy," by Pieraccini ('Il Levato, May 30, 1913), states that a commission appointed by Parliament for the study of the proposal and establishment in Italy of a monopoly of the State for the sale of phymol, makes the following observations: That hookworm infection is an occupational disease affecting almost exclusively those who have to work with the soil, such as gardeners, farmers, miners, etc. It is also a disease which affects chiefly the lower grades of society, not only lowering the resistance of the adult, but also stamping the children of infected adults, as is observed by the retarded or arrested development of the former. The tendency of this disease in Italy has been to spread. Not only is this true of the European varieties, but returning emigrants have brought back the American hookworm, *Necator Americanus*. The measures recommended are the manufacture, sale and administration by the State of phymol, which drug is prompt and efficient in its action against this disease, and is not dangerous when properly administered to children. The State sells this drug for ten centimes a dose, in the same manner that they distribute quinine at low cost in malarial districts. They may recommend that an intelligent search be made among these engaged in certain occupations, to learn if they are carriers of the disease, to recommend sanitary methods of sewage disposal, especially in mines and places where this disease is most often found.

DIPHTHERIA.

This disease is widespread throughout the State. During the year 1913, 1,659 cases were reported. From the numbers of population considered there has been no very large outbreak during the year. There exists a sufficient number of cases, however, to justify health officers to urge the physicians of their respective localities to promptly report all cases that come under their observation, also in order that cases may be recognized with greater accuracy to urge that these physicians send cultures from all suspected throats to the Hygienic Laboratory at Berkeley. Not only should such cultures be sent during the active stage of the disease, but also during convalescence period before the quarantine restrictions have been removed. Frequent swabs should also be made from the throats of other occupants of the house, such as parents, brothers, sisters, nurses, attendants, etc. It is only in comparatively recent times that we fully grasp the fact that this is one of the diseases that is carried by the non-ill bacilli carrier and the mild unrecognized cases of the disease. Until we have, by the means above indicated, discovered a great percentage of these dangerous cases and adopted proper quarantine measures against them, there is little hope of eradication, even in the restricted sense of the term.

Of all the many difficult problems that come up for public health administration, probably one of the least easy to solve satisfactorily is a case of bacilli carriers. It is apparent that upon theoretical grounds, at least, we should keep a person quarantined so long as he contains micro-organisms dangerous to his fellows. In the case of diphtheria this means we should keep him under surveillance as long as bacilli are found in his throat. The practical drawback to this plan is that it often requires restriction of the liberty of the carrier for weeks, months or even years. For this reason any measures that are claimed to succeed in removing the pathogenic micro-organisms from the throats of diphtheria patients are worthy of combined clinical and laboratory investigation.

DONALD H. CURRIE,
Secretary.

REPORT OF BUREAU OF ADMINISTRATION.

JOHN F. LEINEN, Director.

Report of Field Operations Under the Joint Supervision of the State Board of Health and the United States Public Health Service.

Senate Bill No. 160, passed by the California legislature and approved by the Governor of California June 7, 1913, became effective August 10, 1913. The State Board of Health passed the following resolution, under date of August 20, 1913:

Whereas, There has been found within the territory comprised in the counties of Contra Costa, Alameda, Santa Clara, Santa Cruz, Monterey, San Benito, Merced, Stanislaus and San Joaquin, of the State of California, a total of one thousand eight hundred and forty-three (1,843) ground squirrels (*Citellus Beeccheyi*) which have been proven by laboratory investigation to have been infected with a contagious and infectious disease, to wit, bubonic plague; and

Whereas, An act of the legislature of the State of California, approved June 7, 1913, provides: "Whenever any land, place, building, structure, wharf, pier, dock, vessel or water craft is infested with rodents, insects or other vermin which are liable to convey or spread contagious or infectious disease from an existing focus declared by the State Board of Health, it shall be the duty of said Board to at once notify the person, firm, copartnership, company or corporation, owning said land, place, building, structure, wharf, pier, dock, vessel or water craft, of the existence of said rodents, insects or other vermin and said notice shall direct said owner to proceed immediately to exterminate and destroy said rodents, insects or other vermin, and to continue in good faith such measures as may be necessary to prevent their return. In the event that said owner fails, refuses or neglects to proceed as above provided, within ten days from date of receipt of said notice, the State Board of Health may at once proceed to exterminate and destroy said rodents, insects or other vermin, and take such measures as may be necessary to prevent their return, and the cost of the above measures shall be repaid to the State Board of Health by the board of supervisors or other governing body of the county, city and county, city or town wherein the work is done at its next meeting after the bill is presented and the appropriation provided in section 1 of this act shall be reimbursed by the amount so paid, and may again be expended in a similar manner"; therefore, be it

Resolved, That the territory comprised within the aforesaid counties is hereby declared to be an existing focus of contagious and infectious disease; and be it further

Resolved, That the Secretary of this Board be directed to notify the supervisors of the above named counties of the passage of this resolution, and of the intention of the State Board of Health to proceed in accordance with the provisions of the act of the state legislature, approved June 7, 1913.

As soon as this resolution became effective, the following plan of operations was placed in effect:

1. All the counties mentioned in the resolution were divided into districts of approximately forty thousand acres each.

2. Each county was placed under the direction of a supervising inspector, responsible to headquarters; each forty-thousand-acre district was placed under the charge of a field inspector, responsible to the supervising inspector.

3. The field inspectors were directed to serve notices, as provided by law, upon the owners of infested lands.

4. At the expiration of ten days, the field inspector reinspected the property, to determine whether eradication measures had been instituted by the owner. If measures of eradication had not been instituted by the owner, as the law required, the field inspector requested the owner of the land to state a definite date, as early as possible, when he would begin work.

5. If the work of squirrel destruction had not been instituted on or before the date agreed upon, the field inspector reported the facts to

the supervising inspector. The supervising inspector then collected such data as were necessary for the information of the officer in charge, and forwarded the same to headquarters with a request for instructions.

6. When the report above mentioned was received at headquarters, the supervising inspector was either directed to go upon the land as soon as possible and destroy the squirrels that infested the same, or a force of State employees was directed by headquarters to proceed upon the land and do the work. When the work was completed, a statement of the expense incurred was submitted to the owner, and he was given an opportunity to pay the same, if he so desired. If the bill was not paid, as presented, the same was forwarded to the State Board of Health to be collected in the manner provided by the act of the California legislature, approved June 7, 1913.

It became necessary during the fiscal year to proceed upon the lands of fifty-three persons, comprising a total of 11,300 acres. An idea of the co-operation obtained from individuals in the destruction of squirrels may be gathered from the fact that out of a total of 33,350 inspections of ranches made during the fiscal year, only 53 ranches had to be proceeded upon in a summary manner, as provided by law.

Inspection Operations.

During the year inspection of land and serving of notices has been carried on as outlined earlier in this report. Operations have been conducted in the following counties: Contra Costa, San Benito, Santa Clara, Merced, Stanislaus, Alameda, San Joaquin, Santa Cruz, and Monterey. A total of 33,350 inspections over an area of 5,722,438 acres has been made during the year. Reinspections have been made over 6,903,307 acres, and a total of 1,909,728 acres has been treated by landowners as a result of the inspections made and notices served.

Hunting Operations.

Total number of ranches on which plague infected squirrels have been found since August, 1908, 252; total number of ranches hunted over during fiscal year, 2,525.

Squirrels shot	18,012
Squirrels found dead	414
Total	18,426
 Squirrels examined	 18,322
Squirrels infected with plague	177

At the close of the fiscal year ended June 30, 1913, there were 135,146 acres of known infected land. During the fiscal year infection was found on 15,005 acres of land where infection had never before existed. The total area of infected land June 30, 1914, 150,151 acres. In addition to the 150,151 acres of infected land just mentioned, there were 90,405 acres of land which immediately surrounded or adjoined the infected land, which were subjected to the same intensive treatment that was given to the actually infected territory. The total area of infected and adjoining lands is therefore 240,556 acres.

All of the infected and adjoining land has been thoroughly treated, and so far as is possible to determine, it is believed that plague infection has been entirely eradicated, except on about 20,000 acres which require further treatment to complete the eradication of infection. This

land is now being worked and it is believed that squirrels will have been practically eradicated, and all known infection wiped out, by the first of August, nineteen fourteen.

Summary of Hunting Operations for the Period April 1 to July 1, 1912, 1913 and 1914.

	1912	1913	1914
Ranches hunted over.....	723	990	1,464
Total number squirrels shot.....	19,335	16,186	13,162
Hunters engaged (average).....	9	17	21
Average days each man hunted.....	64.4	49.4	57.2
Squirrels per hunter per day.....	33.3	19.2	10.5
Squirrels shot per ranch.....	26.7	16.3	8.5
Infected squirrels shot during period.....	506	283	44
Per cent of squirrels infected.....	2.61	1.74	0.34

Hunting operations over infected and adjoining territory are practically completed.

The forty-four squirrels mentioned in the preceding tables were found as follows:

County	Ranch	Infected Squirrels	Completed or Working
San Benito	McCray	2	Completed
San Benito	Palcines	7	Working
Monterey	Kelley	1	Completed
Contra Costa	Vasco Grant	5	Working
Contra Costa	Crocker	1	Working
Contra Costa	Walnut Creek District (small lots— area 714 acres).....	17	Working
Alameda	Fredericks	11	Working

Of the forty-four infected squirrels shot during the hunting season of 1914, only two had the disease in the septicemic form. These two squirrels were found as follows:

One on the McCray ranch in San Benito County.

One on the Vasco Grant in Contra Costa County.

As may be seen from the summary of hunting operations above given, there has been a reduction in the number of squirrels shot per hunter per day in 1914, as compared to the same period in 1912, of 68.5 per cent; as compared to 1913, there has been a reduction of 45.3 per cent. The reduction in the number of squirrels shot per ranch in 1914 as compared to 1912, is 68.2 per cent, and as compared to 1913 is 47.9 per cent. The reduction of infection in 1914 as compared to 1912 is 91.4 per cent; as compared to 1913, is 84.5 per cent.

Human Cases.

Two human cases of plague occurred during the fiscal year. One case was that of a cook in a railroad camp in Contra Costa County. The disease was bubonic in type and resulted fatally. The other case occurred at Walnut Creek, in Contra Costa County, was mild bubonic in type, atypical in course, and the patient made a prompt recovery.

Special Projects.

During the latter part of the fiscal year ended June 30, 1913, it developed that many landowners were more inclined to proceed with

the eradication of squirrels from their lands if expert supervision could be provided—as past experience had indicated to them that good and permanent results at a low cost, could not be obtained by the methods that had been followed out in the past. After a number of requests of this character had been received, the plan was adopted of providing an expert foreman to supervise the work on any tract of land where the owner would furnish adequate labor, and material sufficient to complete the work of squirrel destruction in a manner satisfactory to the service. During the fiscal year 107 requests for supervision were received and as a result 625,154 acres were freed from squirrels. In every instance complete satisfaction was expressed by the landowners with the results that had been obtained, and the statement was made that a sufficient number of men would be kept at the work of squirrel extermination to prevent reinfestation of the lands that had been cleaned, by squirrels that infested adjoining territory.

General Considerations.

The operations of Senate Bill No. 160, passed by the California legislature and approved by the Governor June 7, 1913, have been very satisfactory. But little opposition has been encountered, and in no instance have legal measures been resorted to by any individual to evade compliance with the law. In several instances intimations were received that a strong desire existed to test the constitutionality of the law, but by careful handling and the exercise of some patience, these landowners were finally induced to comply with the requirements of the law without resorting to legal measures. These individuals have since expressed themselves as entirely satisfied with the work as carried out, and in several instances they have exerted themselves to induce others to comply promptly and consistently, with uniformly good results.

The belief that had heretofore existed throughout the State, that the problem of squirrel destruction was impossible of solution, is gradually losing ground, and representatives of counties in which plague infection has never been found have requested this office to lend assistance in the organization of a campaign of squirrel destruction within said counties. Inasmuch as plague infection had never been demonstrated within these counties, it was impossible to comply with the requests beyond giving such general advice as seemed appropriate. Landowners generally have begun to appreciate, as never before, the economic benefits that are accruing, and will accrue, to them as the result of the destruction of the squirrels which had heretofore infested their properties and caused them great losses each year, due to the destructive tendencies of these rodents; and numbers of individuals have expressed their determination to carry on the work of squirrel destruction to final completion in order to protect the investment that has already been made in work of this character.

As nearly as can be learned, about fifteen hundred squirrel destructors have been used by the various agencies engaged in squirrel destruction. A total of 402,280 acres of land have been treated by this means with, as nearly as can be determined, an average efficiency of from 95 per cent to 100 per cent for the first application.

During the year a new method of using waste balls in the destruction of ground squirrels has been devised. Heretofore the expense attached

to the use of the waste ball method has been between three and three quarters and five cents per hole, for labor and material. As a result of the system in use during the past rainy season the expense per hole has been reduced to about two cents for labor and material. The system in use is, briefly, as follows:

A unit gang of seven laborers was required. A live, active man was selected to place the balls in the holes. He was kept supplied with a bucket of saturated waste balls and a bundle of galvanized iron pins with a white flag attached, similar to the pins used by engineers. The "ball man" placed a ball in each hole encountered and placed a pin close to it. Two "torch men" followed, igniting the balls. Three men with mattocks followed the torch men, covered the holes, and removed the pins. A supply men was utilized to keep the ball man supplied with material, that no time be lost. Where sufficient labor was available, one supply man could keep two gangs of six moving constantly, thus obviating the necessity for the services of one supply man. By this means, in heavy infestation, four hundred to five hundred holes per man per day have been treated. The average for all infestation runs in the neighborhood of two hundred to three hundred holes per man per day, depending upon the topography of the ground. The efficiency of the method has run between 85 per cent and 95 per cent. The principal advantage of this method is that the ground can be rapidly covered and all burrows and colonies are filled with poisonous fumes in a very short space of time, thus insuring the destruction of the majority of the squirrels before they are able to dig out and escape. This method, however, is applicable only in the wet season when the ground is damp, and there is no danger of the dissipation of the gas through cracks in the ground or danger of starting grass or grain fires where dry vegetation exists. A total of 503,125 acres were treated by this method.

The following table will show the results of operations as reported by field inspectors and supervising inspectors from the various counties. This table was compiled from the daily report cards of the various inspectors and has been verified as nearly as possible by surveys made from time to time by representatives from headquarters. It is believed that the figure of 73.8 per cent eradicated is as nearly accurate as it is possible to obtain.

Table Showing Infestation in Plague Infected Counties in California, to June 30, 1914.

RECAPITULATION.

County	Total Area (Acres)	Area Eradicated (Acres)	Percentage Eradicated	Area Squirrels 1 to 5 (Acres)	Percentage Eradicated and 1 to 5	Area Squirrels 5 to 15 (Acres)	Area Squirrels 15 and over (Acres)
Alameda -----	537,600	425,253	79.1 %	103,405	98.3 %	7,306	1,636
Contra Costa -----	480,000	435,568	90.7 %	34,742	97.9 %	9,690	-----
Merced -----	1,120,000	507,768	45.3 %	606,896	99.5 %	5,336	-----
Monterey -----	2,208,000	1,999,512	90.5 %	181,379	98.7 %	26,244	865
San Benito -----	944,640	753,346	79.7 %	177,260	98.5 %	13,510	524
Santa Clara -----	867,200	769,709	88.7 %	72,980	97.1 %	5,140	19,371
Santa Cruz -----	272,000	255,236	93.8 %	16,414	99.8 %	350	-----
San Joaquin -----	876,800	771,272	87.9 %	102,428	99.6 %	3,200	-----
Stanislaus -----	951,040	183,861	19.3 %	438,000	65.3 %	184,539	144,640
Total -----	8,257,280	6,101,525	73.8 %	1,733,504	91.8 %	256,315	167,036

Average eradicated ----- 73.8%
 Average eradicated and 1 to 5 ----- 94.8%

The following table summarizes the total amount of lands treated, the number of acres treated by the various methods, and indicates the cost of all operations, as closely as the same can be figured:

RECAPITULATION OF SQUIRREL ERADICATIVE WORK 1913-1914.
Number of Acres Worked.

	Grain	Waste balls	Destructors	Total
By individuals -----	1,251,836	398,569	251,323	1,901,728
Federal camp -----	3,521	-----	8,220	11,741
Special projects* -----	386,270	99,940	138,944	625,154
State camps -----	2,891	4,616	3,793	11,300
Grand total -----				2,549,923

*Labor and material furnished by owners, supervision by service. Total number acres treated, waste ball and destructors, 905,405.

Number of Holes Treated.

Waste ball and destructors:	
By individuals -----	3,176,206
Federal camp -----	244,295
Special projects -----	1,894,174
State camps -----	241,653
Total -----	5,556,328
Average number of holes per acre-----	6.15
Total number of holes on 2,549,923 acres, at 6.15 holes per acre----	15,650,000

Cost Data.
BY INDIVIDUALS.

	Number pounds used	Cost	Cost of labor	Total cost
Grain-----	472,123	\$35,409 22	\$145,694 25	\$181,103 47
CS ₂ -----	182,220	16,399 80	10,496 00	26,895 80
Killmol -----	147,570	16,232 70	11,189 80	27,422 50
Total -----				\$235,421 77

REPORT OF THE STATE BOARD OF HEALTH.

Squirrel Eradicative Work. Cost Data—Continued.

SPECIAL PROJECTS.

	Number pounds used	Cost	Cost of labor	Total cost
Grain.....	125,231	\$9,392 32		
CS.....	117,740	10,596 60		
Kilmol.....	81,060	8,916 60		
Total.....		\$28,905 52	\$29,486 44	\$58,391 96

FEDERAL.

Headquarters:				
Salaries.....			\$9,929 49	
Rentals.....			1,325 78	
				\$11,255 27
Field:				
Salaries.....			\$79,449 69	
Livery.....			2,618 00	
Supplies.....			1,476 95	
Freight and travel.....			210 00	
				83,754 64
State.....				35,866 80
Counties.....				19,157 32
Oakland (one man).....				1,640 00
Cost of material and labor (individuals).....				235,421 77
Cost of material and labor (special projects).....				58,391 96
Total cost.....				\$445,487 76
Average cost per acre.....				\$0.174
Average cost per hole.....				.028

Summary of Hunting Operations for the Month of July, 1912, 1913, 1914.

		1913	1914
Ranches hunted over.....	344	244	399
Total number squirrels shot.....	4,544	2,811	4,761
Hunters engaged.....	12	11	17
Average days each man hunted.....	19	15.5	18
Squirrels per hunter per day.....	20-	16+	15.5
Squirrels shot per ranch.....	13+	11.5	11.9
Infected squirrels shot during month.....	357	115	16
Percentage of squirrels infected.....	7.8%	4%	0.33%

The sixteen infected squirrels shot in July, 1914, were found as follows:

County	Ranch	Number infected squirrels	Completed or working
Alameda.....	Fredericks.....	6	Completed
Alameda.....	Sullivan (immediately adjoins Fredericks ranch).....	1	Working
Contra Costa.....	Walnut Creek district.....	8	Working
San Benito.....	Paicines.....	1	Completed

Sanitary Inspections.

A request from the State Board of Health for a sanitary inspector was approved on January 22, 1914, and Mr. Edward T. Ross, who served with the United States Public Health Service for eighteen years, was appointed to the position.

Since his appointment the following inspections have been made

Summer resorts	40	Ferryboats	4
Fair grounds	1	Sanitariums	1
Canneries	4	Slaughter houses	3
Trains	55	Packing houses	1
Ranches	2	Granite works	2
Schools	3	Water sheds	4
Jails	2	Labor camps	3
Septic tanks	2	Towns, general inspections.....	22
Sewer farms	1	Hospitals	1
Lodging houses	14	Miscellaneous	3

FINANCIAL STATEMENT.

Biennial Period July 1, 1912, to June 30, 1914—Sixty-fourth and Sixty-fifth Fiscal Years.

Contagious Disease Appropriation.

To prevent the introduction, and provide for the investigation and suppression of contagious and infectious diseases.

1912—Receipts		1912—Expenditures	
Balance from sixty-third fiscal year	\$173 08	Ground squirrel extermination	\$6,430 72
Balance from emergency fund, sixty-third fiscal year	9,985 28	Automobile for use of the United States Public Health Service for plague campaign	1,600 00
		Poliomyelitis investigation	500 00
		Rabies investigation	194 36
		Balance	1,433 28
	\$10,158 36		\$10,158 36

1913—Receipts		1913—Expenditures	
Amount appropriated ...	\$100,000 00	Squirrel extermination:	
Fees collected	458 52	Salaries	\$22,233 31
Refund on salaries	15 00	Office expense	1 00
		General expense	41 42
		Telephone and telegrams	24 76
		Travel expense	541 95
		Automobile expense	1,606 85
		Printing and stationery	304 82
		Miscellaneous	14,502 41
		Sanitary inspections, laboratory work, etc.:	
		Salaries	1,341 66
		Traveling expenses	466 63
		Supplies	194 70
		Miscellaneous	1,490 67
		Balance	57,723 34
	\$100,473 52		\$100,473 52

FINANCIAL STATEMENT—Continued.

Hygienic Laboratory Appropriation.

For support of State Hygienic Laboratory for bacteriological work.

1912—Receipts		1912—Expenditures	
Balance from sixty-third fiscal year	\$328 31	Salaries	\$8,453 05
Amount appropriated	10,000 00	Miscellaneous expenses	1,760 82
Services for Berkeley Health Department	150 00	Printing	28 10
		Travel expenses	122 05
		Sewage investigations	83 55
	\$10,478 31	Balance	30 71
			\$10,478 31

1913—Receipts		1913—Expenditures	
Amount appropriated	\$10,000 00	Salaries	\$7,907 33
Oregon Board of Health, three anti-rabic treatments	30 00	Office expenses	48 29
Refund of salaries	10 00	General expenses	347 32
		Postage	161 00
		Telephone and telegrams	47 27
		Travel expenses	135 75
		Chemicals	163 53
		Animals	167 25
		Printing and stationery	196 76
		Equipment	780 13
		Miscellaneous	85 37
	\$10,040 00		\$10,040 00

FINANCIAL STATEMENT—Continued.

Traveling and Contingent Appropriation.

For traveling and contingent expenses.

1912—Receipts		1912—Expenditures	
Balance from sixty-third fiscal year	\$136 39	Claims of sixty-third fiscal year	\$119 70
Amount appropriated	3,000 00	Salaries	1,512 25
Certified copies of vital statistic records	304 92	Office expense	258 78
United States Government—copies of death certificates	1,041 54	Postage	291 17
Collections under state stream pollution law...	1,680 98	Telephone and telegrams	434 72
		Office equipment	186 40
		Expenses for enforcing stream pollution law...	1,925 49
		Travel expense	1,403 94
		Balance	31 38
	\$6,163 83		\$6,163 83

1913—Receipts		1913—Expenditures	
Amount appropriated	\$3,750 00	Office expense	\$106 21
Certified copies of vital statistic records	397 20	General expense	54 44
United States Government—copies of death certificates	845 85	Salaries	3,608 62
Collections under state stream pollution law...	553 71	Postage	608 90
Return of revolving fund.	250 00	Telephone and telegrams	352 80
Transferred from the contagious disease appropriation	1,490 67	Travel expenses	1,385 90
Return on scrip	4 19	Revolving fund	250 00
		Miscellaneous	46 39
		Investigation of streams	653 69
		Balance	224 67
	\$7,291 62		\$7,291 62

Occupational Disease Appropriation.

For payment of fees for reporting and investigating occupational diseases.

1912—Receipts		1912—Expenditures	
Balance from sixty-third fiscal year	\$196 00	Payments for reports....	\$5 00
Amount appropriated	200 00	Balance	391 00
	\$396 00		\$396 00

1913—Receipts		1913—Expenditures	
Amount appropriated	\$1,000 00	Fees	\$3 00
		Balance	997 00
	\$1,000 00		\$1,000 00

FINANCIAL STATEMENT—Continued.

Pure Food and Drug Appropriation.

For the support of the Pure Food and Drug Laboratory.

1912—Receipts		1912—Expenditures	
Balance from sixty-third fiscal year	\$1,300 77	Drayage	\$0 00
Amount appropriated	15,000 00	Stationery	144
Fines collected	85 00	Gas and water	70
		Salaries	11,053
		Extra help	325
		Travel expenses, inspectors	1,740
		Travel expenses, director	368
		Travel expenses, attorney	384
		Travel expenses, miscellaneous	57
		Apparatus	367
		Supplies	667
		Petty bills	315
		Subscriptions	10
		Books	42
		Telegrams	1
		Furniture	126
		Telephone	12
		Press clippings	110
		Expressage	19
		Postage	99
		Printing	87
		Rent of office, Los Angeles	162
		Miscellaneous	58
		Notary fees	77
		Balance	81
	\$16,385 77		\$16,385

1913—Receipts		1913—Expenditures	
Amount appropriated	\$22,500 00	General expense	\$442
Fines collected	222 25	Postage	128
Refund on claims	35 71	Printing and stationery	442
Fees for water examinations	180 00	Notary fees	89
		Chemicals	642
		Apparatus	1,920
		Office rent, Los Angeles	162
		Miscellaneous	513
		Office expense:	
		Berkeley	441
		Sacramento	10
		Salaries:	
		Inspectors	6,598
		Office, Berkeley	5,469
		Office, Sacramento	1,235
		Traveling expenses:	
		Inspectors	2,039
		Director	158
		Attorney	301
		Miscellaneous	46
		Balance	2,296
	\$22,937 96		\$22,937

FINANCIAL STATEMENT—Continued.

Printing Appropriation.

For printing, binding, ruling and all other work performed and materials furnished by the State Printing Office.

1912—Receipts		1912—Expenditures	
Balance from sixty-third fiscal year	\$1,293 93	Bulletins, stationery, etc. Balance	\$2,665 63 1,628 30
Amount appropriated ...	3,000 00		
	\$4,293 93		\$4,293 93

1913—Receipts		1913—Expenditures	
Amount appropriated ...	\$4,000 00	Bulletins	\$1,693 22
		Stationery	1,074 09
		Binding	537 30
		Balance	695 39
	\$4,000 00		\$4,000 00

Statutory Salaries.

1912—Receipts		1912—Expenditures	
Amount appropriated ...	\$20,900 00	Central office:	
		Secretary	\$3,600 00
		Assistant to the secretary	2,400 00
		Statistician	2,400 00
		Deputy statistician	1,600 00
		Clerk	1,600 00
		Two copyists	1,800 00
		Pure food and drug laboratory:	
		Director	3,000 00
		Assistant director	1,500 00
		Attorney	3,000 00
	\$20,900 00		\$20,900 00

1913—Receipts		1913—Expenditures	
Amount appropriated ...	\$22,100 00	Central office:	
		Secretary	\$3,280 00
		Assistant to the secretary	2,400 00
		Statistician	2,400 00
		Deputy statistician	1,600 09
		Clerk	1,600 00
		Two copyists	1,800 00
		Stenographer	1,135 37
		Pure food and drug laboratory:	
		Director	3,000 00
		Assistant director	1,200 00
		Attorney	3,000 00
		Balance	684 63
	\$22,100 00		\$22,100 00

FINANCIAL STATEMENT—Continued.

Tuberculosis Appropriation (Chapter 692, Statutes 1911.)

Providing for the dissemination of knowledge among the people of California as to the best means of preventing the spread of tuberculosis.

1912—Receipts		1912—Expenditures	
Balance from sixty-third fiscal year -----	\$2,057 32	Salaries -----	\$676 25
Refund on scrip -----	2 75	Postage -----	25 75
		Printing -----	7 10
		Extra clerical help -----	43 35
		Travel expenses -----	917 32
		Supplies -----	44 00
		Drayage -----	12 50
		Miscellaneous expense -----	36 00
		Balance -----	297 80
	\$2,060 07		\$2,060 07

1913—Receipts		1913—Expenditures	
Balance from sixty-fourth fiscal year -----	\$297 80	Salaries -----	\$60 00
		Balance -----	237 80
	\$297 80		\$297 80

Tuberculosis Appropriation (Chapter 242, Statutes 1909.)

Providing for the dissemination of knowledge among the people of California as to the best means of preventing the spread of tuberculosis.

1912—Receipts		1912—Expenditures	
Balance from the sixty-third fiscal year -----	\$1 08	Postage -----	\$1 08

Tuberculosis Appropriation (Chapter 385, Statutes 1913.)

Providing for the establishment and maintenance of a department of tuberculosis under the direction of the State Board of Health.

1913—Receipts		1913—Expenditures	
Amount appropriated -----	\$7,500 00	Office expenses -----	\$39 5
Refund on scrip -----	7 03	Salaries -----	2,700 0
		Postage -----	20 0
		Travel expenses -----	419 5
		Printing and stationery -----	19 6
		Balance -----	4,308 3
	\$7,507 03		\$7,507 0

FINANCIAL STATEMENT—Continued.

Nurses' Registration Fund.

Provided to promote the better education of nurses and the better care of the sick in the State of California, to provide for and regulate the examination and registration of graduate nurses, and to provide for the issuance of certificates of registration as registered nurses to qualified applicants.

1913—Receipts		1913—Expenditures	
License fees -----	\$48,582 00	Salaries -----	\$2,379 51
		Postage -----	668 00
		Printing and stationery -----	700 56
		Travel expenses -----	233 05
		Miscellaneous expenses -----	217 40
		Balance -----	44,383 48
	<u>\$48,582 00</u>		<u>\$48,582 00</u>

Anti-Rabic Virus Appropriation.

Authorizing the State Board of Health to purchase, or prepare, and distribute, free of cost, to certain persons, anti-rabic virus.

1913—Receipts		1913—Expenditures	
Amount appropriated ---	\$5,000 00	General expenses -----	\$120 14
		Salaries -----	1,789 49
		Postage -----	104 00
		Printing and stationery -----	12 75
		Apparatus -----	161 69
		Miscellaneous -----	18 00
		Animals -----	284 85
		Balance -----	2,509 08
	<u>\$5,000 00</u>		<u>\$5,000 00</u>

Cold Storage Fund.

Provided for the regulation of refrigerating warehouses.

1913—Receipts		1913—Expenditures	
License fees -----	\$1,150 00	Salaries -----	\$41 69
		Postage -----	126 30
		Travel expenses -----	6 64
		Balance -----	975 37
	<u>\$1,150 00</u>		<u>\$1,150 00</u>

Office Equipment Appropriation.

Providing for the purchase of office equipment.

1913—Receipts		1913—Expenditures	
Amount appropriated ---	\$2,200 00	Equipment -----	\$2,031 70
		Balance -----	168 30
	<u>\$2,200 00</u>		<u>\$2,200 00</u>

REPORT OF BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, STATISTICIAN.

I. SUMMARY OF STATISTICS: 1913 AND 1912.

SYNOPSIS.

Birth, Death and Marriage Totals.—The California birth total has more than doubled since the first year's registration of 20,974 for 1906, having risen steadily to 39,330 for 1912, and 43,852 for 1913.

The excess of births over deaths first shown in 1911 was as great as 5,253, or 13.6 per cent, in 1913.

The death total, exclusive of stillbirths, has oscillated slightly since the start at 29,303 in 1906, being 36,709 in 1912 and 38,599 in 1913.

The marriages have fluctuated greatly from the total of 21,317 for 1906, numbering 31,276 for 1912, but only 31,383 for 1913.

In 1912 to 1913 births increased by no less than 4,522, or 11.5 per cent; deaths by 1,890, or 5.1 per cent; and marriages by merely 107, or 0.3 per cent.

The birth rate has grown steadily ever since 1906, while the death and marriage rates each fell at times in the eight-year period.

The increase in 1912 to 1913 for both births and deaths was relatively greater for the territory south of Tehachapi than for that to the north, while the gain in marriages was confined among geographic divisions to Southern California.

Increases appeared for thirty-seven of the whole fifty-eight counties in births, for thirty-eight in deaths, and for twenty-seven in marriages.

The rates of gain in births surpassed the State average (11.5) in the following twenty-two counties: Alpine, Inyo, Mendocino, Sutter, San Diego, Placer, Imperial, Contra Costa, Sonoma, Madera, Yolo, Tehama, San Joaquin, Yuba, Sacramento, Tulare, Amador, Los Angeles, Kern, Alameda, Monterey and Orange.

The increases in deaths were over 10.0 per cent in sixteen counties, as follows: Lassen, Imperial, Madera, Modoc, Placer, Amador, Yuba, Plumas, Siskiyou, Mariposa, Contra Costa, Solano, Monterey, Sutter, Sierra, and Calaveras.

The gains in marriages exceeded 10.0 per cent in the following thirteen counties: Inyo, Trinity, Yolo, Imperial, Yuba, Sutter, San Diego, Napa, Shasta, Siskiyou, Del Norte, Contra Costa, and San Joaquin.

For freeholders' charter cities as a class the rate of gain in births was 11.8 against 5.4 in deaths, while for all the rest of the State the per cents of increase were 11.0 and 4.8 for births and deaths, respectively.

Increases in births were shown by eighteen of thirty-one chartered cities and in deaths by twenty cities.

The gains in births surpassed the city average, 11.8 per cent, in thirteen cities, as follows: Petaluma, San Diego, Santa Monica, Long Beach, San Bernardino, Richmond, Sacramento, Berkeley, Watsonville, Pasadena, Oakland, Los Angeles, and San Jose.

The increases in deaths exceeded the average for cities, 5.4 per cent, in the following thirteen cities: Long Beach, Modesto, Salinas, Napa, Vallejo, Eureka, Richmond, Grass Valley, Fresno, Los Angeles, San Diego, San Bernardino, and Sacramento.

Birth and Death Totals Compared.—The birth registration exceeded the death total in 1913 for all geographic divisions except only the coast counties of northern California, the total excess of births over deaths being as great as 5,253, or 13.6 per cent, in 1913 against merely 2,621, or 7.1 per cent, in 1912.

The excess of births over deaths for chartered cities was 18.0 per cent in 1913, and 11.2 per cent in 1912, as compared with only 6.7 and 0.8 per cent respectively for the rest of California.

More births than deaths were reported in both 1913 and 1912 for seventeen cities, as follows: Santa Rosa in Northern California; San Francisco, Alameda, Berkeley, Oakland, Richmond, Monterey, San Luis Obispo, Palo Alto, San Jose, Watsonville, Fresno, Sacramento, and Vallejo in Central California; and Los Angeles, Pasadena, and Riverside in Southern California.

The thirty-two chartered cities in 1913 and the thirty-one in 1912 reported altogether 63.3 and 63.1 per cent of the birth registration for the whole State, as compared with only 60.9 and 60.8 per cent, respectively, of the California death total, birth registration being more complete within these cities than outside them.

Birth, Death and Marriage Rates.—For 1913 and 1912, respectively, the California birth rates per 1,000 population were 16.4 and 15.2, the death rates 14.4 and 14.2, and the marriage rates 11.7 and 12.1.

The latest birth rates are by far the highest since 1906, as are marriage rates also in less degree, though recent death rates are about the same as for 1906 to 1908.

The birth, death and marriage rates, especially births, are considerably higher for Southern California than for Central or Northern California.

The rates in each case are higher for the metropolitan area than for the rural counties north of Tehachapi as well as for San Francisco than for the other bay counties.

The individual counties with birth rates above the State averages in both 1913 and 1912 were: Sacramento, San Diego, Stanislaus, Los Angeles, Fresno, Orange, and San Francisco.

The counties with death rates above the general averages in both years were: Napa, San Diego, San Joaquin, Lake, Sacramento, Yuba, El Dorado, San Bernardino, San Francisco, Santa Clara, Los Angeles, and Nevada.

Marin and Orange, near San Francisco and Los Angeles, invariably show by far the highest marriage rates. Other counties with marriage rates above the State averages in the last two years were: San Diego, Sacramento, San Francisco, Los Angeles, and San Mateo.

The birth rates are much higher for chartered cities, 18.1 and 17.0 in 1913 and 1912, than for all the rest of the State, merely 14.1 and 13.0.

The death rates are also somewhat higher within cities, 15.3 and 15.2, than outside them, only 13.3 and 12.9.

The birth rates exceeded the city averages both years in Watsonville, Richmond, Modesto, Fresno, Santa Rosa, San Diego, Sacramento, Los Angeles, San Luis Obispo, and San Jose.

The death rates surpassed the averages for cities each year in Modesto, San Diego, San Bernardino, Richmond, Long Beach, Eureka, Watsonville, Santa Monica, Stockton, Sacramento, Santa Rosa, San Luis Obispo, Santa Barbara, and San Francisco.

On the other hand, there were relatively low death rates in both 1913 and 1912 for Palo Alto, Berkeley, Monterey, Alameda, Oakland, Pasadena, Pomona, Petaluma, Vallejo, Santa Cruz, and Fresno.

INTRODUCTION.

Sources of Information.—The California law of 1905 for the registration of vital statistics requires the prompt reporting of every birth, death or marriage occurring in the State by the immediate filing of a prescribed form of certificate for each such event with the proper local registrar for transmittal in monthly returns to the State Bureau of Vital Statistics. The local registrars are the health officers of cities having freeholders' charters, for both births and deaths, and the clerks in other cities and incorporated towns for deaths alone. Each county recorder, besides being local registrar for all marriages anywhere in the county, is also local registrar for births occurring outside freeholders' charter cities, as well as for deaths happening outside all cities and incorporated towns. County recorders as local registrars of deaths for the unincorporated portions of counties furthermore appoint subregistrars to receive death certificates and issue burial or removal permits at points remote from county seats.

The California law requires a physician or other person assisting at a birth to file a certificate, properly filled out, within five days thereafter with the health officer for a birth occurring in any freeholders' charter city or with the county recorder for a birth taking place outside cities of this class. In case of a birth occurring without the attendance of a physician, midwife or nurse, the parents or next of kin are required by law to file the birth certificate with the proper local registrar within ten days after the event.

As to deaths, the State law holds each undertaker responsible for obtaining and filing a satisfactory death certificate with the local registrar (or subregistrar) of the district where any death occurs. Prior to the interment or other disposition of the body, the statute forbidding any disposition of the remains except by authority of the local registrar's (or subregistrar's) permit obtainable only by the filing of a complete and satisfactory death certificate.

With reference to marriages, the California law requires all persons who perform the marriage ceremony in this State to file the prescribed form of marriage certificate, properly filled out, with the county recorder as local registrar within three days after the performance by them of any marriage ceremony.

Indexing of Records. The original certificates of births, deaths and marriages thus filed with local registrars are required by law to be forwarded to the State Registrar on or before the fifth day of the following month. In the State Bureau of Vital Statistics the births, deaths and marriages throughout California are indexed separatel

and systematically on appropriate cards sorted and arranged by names in alphabetical order carried to minute subdivisions. For the period from about July 1, 1905, when the law was put into operation, to the end of 1913 the index cards for California aggregate nearly 300,000 each for births as well as deaths, and over 400,000 for marriages, the marriage index cards being made in duplicate and then sorted separately to cover both grooms and brides. For eight and a half years there are thus altogether 1,000,000 index cards on file in the State bureau as references to the names of children born, persons dead, and couples married in California.

Tabulation of Statistics.—In the State Bureau of Vital Statistics the statistical information on the original birth certificates there filed has been tabulated to the present time merely by direct tallying of certain items from the original certificates. Likewise, statistical data have been compiled as yet from the original marriage certificates simply by sorting and counting the certificates in selected groups. The birth and marriage tabulations are thus necessarily limited within a somewhat restricted range permitting no further expansion.

For deaths, however, tabulation cards have been in use since the organization of the State bureau in 1905 which allow a wide range in the scope of statistical tabulations relating to mortality. In the California Bureau of Vital Statistics the statistical data on the death certificates are transferred to tabulation cards such as are used in the Federal Census Bureau by means of a punching machine. The tabulation cards are punched to show for each death the following particulars: Sex, color (or race), month of death, age, conjugal (or marital) condition, birthplace, birthplace of father, birthplace of mother (by countries for the foreign born), occupation, cause of death, and length of residence in California. Occupations and causes of death are necessarily designated by index numbers, the key for occupations being like that used in the Vital Statistics Division of the Federal Census Bureau, and the key for deaths agreeing with the International Classification of Causes of Death. Each tabulation card also shows, by certain holes punched according to a definite system, the registration district (the county and the freeholders' charter city or other city or town), as well as the local registered number of the certificate to which the card corresponds.

Although the tabulation cards are meant to be sorted and counted by electrical tabulating devices such as are used in the Federal Census Bureau and other statistical offices, the cards in the California Bureau of Vital Statistics have so far been sorted and tabulated only by hand. On this account the tabulations have necessarily been limited to causes of death, and, in addition, to only sex, race, nativity (of white decedents), age periods and occupations for both 1913 and 1912, together with marital or conjugal condition for 1913 alone. Because of the lack of clerical assistance it has also been impossible to make these detailed tabulations for leading cities or individual counties, but only for certain geographic divisions, data being published in some cases merely for the State as a whole. However, total deaths have been tabulated by causes for freeholders' charter cities as well as for all counties in both 1913 and 1912.

Geographic Divisions.—For convenience in tabulation the fifty-eight counties of California have been grouped in three main and eight minor geographic divisions. The three main divisions are Northern, Central, and Southern California. The line between Northern and Central California has been drawn at the southern boundary of Placer, Sutter, Colusa, Napa, and Sonoma counties, or the northern boundary of El Dorado, Sacramento, Yolo, and Marin counties. This dividing line extends irregularly from Lake Tahoe to the Pacific Ocean somewhat north of San Francisco Bay. The line between Central and Southern California has been drawn at the southern boundary of Inyo, Kern, and San Luis Obispo counties, or the northern boundary of San Bernardino, Los Angeles, Ventura, and Santa Barbara counties. This line is familiarly located by Tehachapi pass.

In both Northern and Central California, divisions have been made between the coast and the interior counties. In each case the coast counties include some counties not actually contiguous to the Pacific Ocean but yet on the westward side of the Coast Range. Moreover, in Central California, San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) have been made minor geographic divisions. Similarly, in Southern California, Los Angeles has been made a minor geographic division in contrast with the other seven counties south of Tehachapi.

The three main and eight minor geographic divisions are as follows, the counties in each group being arranged alphabetically for the sake of ready reference:

TABLE 1.—Main and Minor Geographic Divisions of California, with Counties Included in Each.

NORTHERN CALIFORNIA.			
<i>Coast Counties.</i>			
Del Norte	Lake	Napa	Trinity
Humboldt	Mendocino	Sonoma	
<i>Interior Counties.</i>			
Butte	Modoc	Shasta	Sutter
Colusa	Nevada	Sierra	Tehama
Glenn	Placer	Siskiyou	Yuba
Lassen	Plumas		
CENTRAL CALIFORNIA.			
<i>San Francisco.</i> (City and County)			
<i>Other Bay Counties.</i>			
Alameda	Contra Costa	Marin	San Mateo
<i>Coast Counties.</i>			
Monterey	San Luis Obispo	Santa Clara	Santa Cruz
San Benito			
<i>Interior Counties.</i>			
Alpine	Inyo	Merced	Stanislaus
Amador	Kern	Mono	Tulare
Calaveras	Kings	Sacramento	Tuolumne
El Dorado	Madera	San Joaquin	Yolo
Fresno	Mariposa	Solano	
SOUTHERN CALIFORNIA.			
<i>Los Angeles.</i>			
<i>Other Counties.</i>			
Imperial	Riverside	San Diego	Ventura
Orange	San Bernardino	Santa Barbara	

BIRTH, DEATH AND MARRIAGE TOTALS.

The State.—Under the law of 1905 for the registration of vital statistics in California, returns are now available for the eight calendar years, 1906 to 1913, inclusive. Figures for the State as a whole are summarized in the table which follows, giving the birth, death and marriage totals, together with the increase and rate per 1,000 population, for the eight-year period covered by the operations of the present law.

TABLE 2.—Birth, Death and Marriage Totals, with Increase and Rate per 1,000 Population, for California: 1906 to 1913.

Year	Total	Increase		Rate per 1,000 population
		Number	Per cent	
Births.				
1913	43,852	4,522	11.5	16.4
1912	39,330	4,502	12.9	15.2
1911	34,828	2,090	8.4	14.0
1910	32,138	1,256	4.1	13.4
1909	30,828	2,806	10.0	13.4
1908	28,077	3,403	13.8	12.7
1907	24,674	8,700	17.6	11.6
1906	20,974			10.3
Deaths.				
1913	38,599	1,890	5.1	14.4
1912	36,709	2,607	7.9	14.2
1911	34,012	1,614	5.0	13.7
1910	32,398	1,413	4.6	13.5
1909	30,985	*302	*1.0	13.4
1908	31,287	192	0.6	14.1
1907	31,095	1,792	6.1	14.6
1906	29,303			14.4
Marriages.				
1913	31,383	107	0.3	11.7
1912	31,276	3,973	14.6	12.1
1911	27,303	2,366	9.5	11.0
1910	24,937	2,020	8.8	10.4
1909	22,917	1,178	5.4	9.9
1908	21,739	*1,266	*5.5	9.8
1907	23,005	1,688	7.9	10.8
1906	21,317			10.5

*Decrease.

While the death and marriage totals for California have fluctuated somewhat in the eight years, each having decreased once though increasing thereafter, the birth total has grown steadily in successive years, rising from 20,974 in 1906 to 24,674 in 1907, 28,077 in 1908, 30,828 in 1909, 32,138 in 1910, 34,828 in 1911, 39,330 in 1912, and 43,852 in 1913. Beginning with 1911, moreover, the aggregate birth registration in California has exceeded the annual death total in increasing degree, the excess of births over deaths rising from 816, or 2.4 per cent, in 1911 to 2,621, or 7.1 per cent, in 1912, and to no less than 5,253, or 13.6 per cent, in 1913. Stillbirths are excluded from birth and death tabulations in all cases throughout this report.

The death total, exclusive of stillbirths, rose from 29,303 for 1906 to 31,095 for 1907 and to only 31,287 for 1908, falling back to 30,985 for 1909 but then rising again to 32,398 for 1910, 34,012 for 1911, 36,709 for 1912, and 38,599 for 1913.

The increase of 1,792, or 6.1 per cent, for 1906 to 1907 was followed by a gain of only 192, or 0.6 per cent, for 1907 to 1908 and a loss of 302, or 1.0 per cent, for 1908 to 1909, the death total for 1909 being thus less by 110 than that for 1907. However, the increase of 1,413, or 4.6 per cent for 1909 to 1910, was succeeded by the still greater gains of 1,614, or 5.0 per cent, for 1910 to 1911, of 2,697, or 7.9 per cent, for 1911 to 1912, and of 1,890, or 5.1 per cent, for 1912 to 1913.

The marriage total, beginning with 21,317 for 1906, rose to an early maximum of 23,005 for 1907, dropping then to 21,739 for 1908, but rising thereafter to 22,917 for 1909, 24,937 for 1910, 27,303 for 1911, 31,276 for 1912, and 31,383 for 1913. The early increase of 1,688, or 7.9 per cent, for 1906 to 1907 was followed by a decrease of 1,266, or 5.5 per cent, for 1907 to 1908 offset in part by the succeeding gain of 1,178, or 5.4 per cent, for 1908 to 1909. The gains in marriages were then successively greater, both absolutely and relatively, in the whole period 1909 to 1912, the increase being 2,020, or 8.8 per cent, for 1909 to 1910, 2,366, or 9.5 per cent, for 1910 to 1911; and 3,973, or 14.6 per cent, for 1911 to 1912. In 1912 to 1913, however, the increase in marriages was only 107, or 0.3 per cent, this small gain, like the sharp drop in the marriage total for 1908, indicating that matrimony is avoided during periods of hard times.

With reference to successive increases in births shown in Table 2, it must be remembered that the number and per cent of increase necessarily grow less and less as registration becomes more and more complete, since the early gains were swollen by improved registration while recent gains include little except the natural growth of population. Thus, the greatest relative increase shown is that of 3,700, or 17.6 per cent, for 1906 to 1907, due mainly to improved registration, yet the greatest real gain, largely in births occurring, is that of 4,522, or 11.5 per cent, for 1912 to 1913 or the preceding increase, slightly greater in degree, of 4,502, or 12.9 per cent, for 1911 to 1912.

Moreover, the birth rate per 1,000 population was highest of all, 16.4, for 1913 and next highest, 15.2, for 1912, the birth rate having moved upward ever since 1906, while the death and marriage rates have each suffered some diminution in the course of the eight-year period. Thus the death rates of 14.4 and 14.2 for 1913 and 1912, respectively, though somewhat above the death rates for 1909 to 1911 are yet not far from the same as the higher death rates for the earlier years, 1906 to 1908. Furthermore, the marriage rate of 11.7 for 1913, while less than that of 12.1 for 1912, is much greater than the marriage rate for any year between 1906 and 1911.

Geographic Divisions.—The following table gives the birth, death and marriage totals for the several geographic divisions in the last two years, together with the number and per cent of increase for 1912 to 1913.

TABLE 3.—Birth, Death and Marriage Totals, with Increase, for Geographic Divisions: 1913 and 1912.

Geographic division	Births		Deaths		Marriages		Increase: 1912 to 1913			Per cent	
	1913	1912	1913	1912	1913	1912	Births	Deaths	Marriages	Births	Death
THE STATE -----	43,852	39,330	38,599	36,709	31,383	31,276	4,522	1,890	107	11.5	5.1
<i>Northern California</i> -----											
Coast counties	8,918	3,596	4,267	4,029	2,287	2,828	822	238	*41	9.0	5.9
Interior counties	1,746	1,529	2,187	2,155	1,131	1,176	217	32	*45	14.2	1.5
	2,172	2,067	2,080	1,874	1,156	1,152	106	206	4	5.1	11.0
<i>Central California</i> -----											
San Francisco	23,165	21,218	20,302	19,653	16,947	17,271	1,947	649	*324	9.2	3.8
Other bay counties	7,552	6,954	7,002	6,766	5,940	6,102	598	236	*162	8.6	3.5
Coast counties	5,738	5,058	4,602	4,470	4,588	4,710	678	182	*127	13.4	3.0
Interior counties	2,685	2,455	2,431	2,332	1,681	1,737	130	99	*56	5.3	4.2
	7,292	6,751	6,267	6,065	4,743	4,722	541	182	21	8.0	3.0
<i>Southern California</i> -----											
Los Angeles	16,769	14,516	14,080	13,027	12,149	11,677	2,253	1,003	472	15.5	7.7
Other counties	11,937	10,408	9,705	8,890	7,584	7,490	1,559	815	94	15.0	9.2
	4,802	4,108	4,325	4,137	4,565	4,187	694	188	378	16.9	4.5
<i>Northern and Central California</i> -----											
Coast counties	27,083	24,814	24,569	23,682	19,234	19,599	2,269	887	*365	9.1	3.7
Interior counties	17,619	15,996	16,223	15,723	13,335	13,725	1,623	499	*390	10.1	3.2
	9,464	8,818	8,347	7,959	5,890	5,874	646	388	25	7.3	4.9
Metropolitan area -----											
Rural counties	13,288	12,012	11,604	11,236	10,523	10,812	1,276	368	*289	10.6	3.3
	13,795	12,802	12,965	12,446	8,711	8,787	983	519	*76	7.8	4.2

*Decrease.

In 1912 to 1913 the increase shown for California as a whole was 4,522, or 11.5 per cent, in births against only 1,230, or 5.1 per cent, in deaths and merely 107, or 0.3 per cent, in marriages.

The rate of gain in births was 15.5 for Southern California (being 15.0 for Los Angeles alone and 16.9 for the remaining seven counties), as compared with 9.1 for Northern and Central California together. Similarly the per cent of increase in deaths was 7.7 for the counties south of Tehachapi (being 9.2 for Los Angeles and 4.5 for the other seven) against merely 3.7 for the territory north of Tehachapi. The increase in marriages in 1912 to 1913 was practically confined among geographic divisions to Southern California, the rate of gain being 1.3 for Los Angeles and no less than 9.0 for the other counties, or 4.0 for the whole territory south of Tehachapi, in contrast with a decrease of 1.9 per cent in marriages in Northern and Central California together.

Counties.—Table 4 shows the birth, death and marriage totals for counties as well as the numerical increase in 1912 to 1913.

TABLE 4.—Birth, Death and Marriage Totals, with Increase, for Counties: 1913 and 1912.

County	Births		Deaths		Marriages		Increase 1912 to 1913		
	1913	1912	1913	1912	1913	1912	Births	Deaths	Marriages
CALIFORNIA	43,852	39,330	38,509	36,709	31,383	31,276	4,522	1,890	107
Alameda	4,406	3,893	3,613	3,581	2,874	2,821	513	82	53
Alpine	6	3	3	3		2	3	†	*
Amador	108	92	152	114	64	62	16	38	2
Butte	461	473	367	406	223	252	*	*	*
Calaveras	104	97	111	98	29	35	7	13	*
Colusa	96	97	87	97	34	32	*	*	2
Contra Costa	632	483	396	331	239	210	149	65	29
Del Norte	24	31	30	31	24	21	*	*	3
El Dorado	92	106	119	129	39	44	*	*	*
Fresno	1,023	1,678	1,106	1,044	954	973	*	62	*
Glenn	113	127	63	68	64	66	*	*	*
Humboldt	406	475	422	391	281	329	*	31	*
Imperial	257	184	266	156	205	154	73	110	51
Inyo	15	9	44	41	50	26	6	3	24
Kern	690	541	524	528	423	464	79	*	*
Kings	249	243	203	188	188	239	6	15	*
Lake	79	76	97	100	35	37	3	*	*
Lassen	45	46	74	37	36	37	*	37	*
Los Angeles	11,967	10,408	9,705	8,890	7,584	7,490	1,559	815	94
Madera	153	125	103	68	89	93	28	35	*
Marin	219	251	278	253	1,089	1,294	*	25	*
Mariposa	25	23	28	23	5	8	2	5	*
Mendocino	338	204	325	332	180	193	134	*	*
Merced	276	270	186	176	147	138	6	10	9
Modoc	88	79	46	32	53	58	9	14	*
Mono	2	8	5	11	2	6	*	*	*
Monterey	348	308	320	274	168	202	40	46	*
Napa	166	174	535	528	189	159	*	7	30
Nevada	133	160	235	222	76	91	*	13	*
Orange	721	638	541	515	1,359	1,290	83	26	69
Placer	320	228	301	214	89	111	92	87	*
Plumas	50	55	59	48	26	25	*	11	1
Riverside	575	553	460	510	415	448	22	*	*
Sacramento	1,584	1,338	1,301	1,212	1,142	1,142	246	89	†
San Benito	132	136	92	86	50	76	*	6	*
San Bernardino	999	927	1,048	1,042	680	650	72	6	30
San Diego	1,574	1,079	1,397	1,294	1,410	1,134	495	103	276
San Francisco	7,552	6,964	7,002	6,766	5,940	6,102	596	236	*
San Joaquin	715	601	954	1,088	692	620	114	*	72
San Luis Obispo	283	268	205	205	186	185	15	†	1
San Mateo	479	431	315	305	381	385	48	10	*
Santa Barbara	429	464	353	360	314	297	*	*	17
Santa Clara	1,427	1,355	1,444	1,380	1,024	1,004	72	55	20
Santa Cruz	395	368	370	378	253	270	7	*	*
Shasta	226	238	192	182	141	121	*	10	20
Sierra	30	33	46	40	11	11	*	6	†
Siskiyou	207	224	205	167	164	143	*	38	21
Solano	353	347	371	315	174	164	6	56	10
Sonoma	704	540	735	712	408	427	164	23	*
Stanislaus	529	558	330	331	230	239	*	*	*
Sutter	142	89	76	66	36	28	53	10	8
Tehama	136	113	143	146	109	106	23	*	3
Trinity	29	29	43	61	14	10	†	*	4
Tulare	613	521	415	393	340	324	92	22	16
Tuolumne	47	44	133	130	50	50	3	3	†
Ventura	247	263	260	260	182	214	*	†	*
Yolo	178	147	179	193	125	93	31	*	32
Yuba	125	105	186	149	94	71	20	37	23

*Decrease.

†No change.

It appears from this table that in 1912 to 1913 the birth registration increased in thirty-seven counties, remained stationary in one, and decreased in twenty. The death total rose in thirty-eight counties, stood still in three, and fell off in seventeen. The marriages increased in only twenty-seven counties, showed no change in three, and even decreased in twenty-eight.

For the thirty-seven counties showing increases in births the rates of gain ranged as follows: Alpine, 100.0; Inyo, 66.7; Mendocino, 65.7; Sutter, 59.6; San Diego, 45.9; Placer, 40.4; Imperial, 39.7; Contra Costa, 30.8; Sonoma, 30.4; Madera, 22.4; Yolo, 21.1; Tehama, 20.4; San Joaquin and Yuba, each 19.0; Sacramento, 18.4; Tulare, 17.7; Amador, 17.4; Los Angeles, 15.0; Kern, 14.6; Alameda, 13.2; Monterey and Orange, each 13.0; Modoc, 11.4; San Mateo, 11.1; Mariposa, 8.7; San Francisco, 8.6; San Bernardino, 7.8; Calaveras, 7.2; Tuolumne, 6.8; San Luis Obispo, 5.6; Santa Clara, 5.3; Riverside, 4.0; Lake, 3.9; Kings, 2.5; Merced, 2.2; Santa Cruz, 1.8; and Solano, 1.7.

For the thirty-eight counties reporting more deaths in 1913 than in 1912, the per cents of increase were as follows: Lassen, 100.0; Imperial, 70.5; Madera, 51.5; Modoc, 43.8; Placer, 40.7; Amador, 33.3; Yuba, 24.8; Plumas, 22.9; Siskiyou, 22.8; Mariposa, 21.7; Contra Costa, 19.6; Solano, 17.8; Monterey, 16.8; Sutter, 15.2; Sierra, 15.0; Calaveras, 13.3; Marin, 9.9; Los Angeles, 9.2; Kings and San Diego, each 8.0; Humboldt, 7.9; Inyo and Sacramento, each 7.3; San Benito, 7.0; Fresno and Nevada, each 5.9; Merced, 5.7; Tulare, 5.6; Shasta, 5.5; Orange, 5.0; Santa Clara, 4.0; San Francisco, 3.5; San Mateo, 3.3; Sonoma, 3.2; Tuolumne, 2.3; Napa, 1.3; Alameda, 0.9; and San Bernardino, 0.6.

The per cents of increase in marriages for the twenty-seven counties showing gains in 1912 to 1913 were as follows: Inyo, 92.3; Trinity, 40.0; Yolo, 34.4; Imperial, 33.1; Yuba, 32.4; Sutter, 28.6; San Diego, 24.3; Napa, 18.9; Shasta, 16.5; Siskiyou, 14.7; Del Norte, 14.3; Contra Costa, 13.8; San Joaquin, 11.6; Merced, 6.5; Colusa, 6.3; Solano, 6.1; Santa Barbara, 5.7; Orange, 5.3; Tulare, 4.9; San Bernardino, 4.6; Plumas, 4.0; Amador, 3.2; Tehama, 2.8; Santa Clara, 2.0; Alameda, 1.9; Los Angeles, 1.3; and San Luis Obispo, 0.5.

Cities. Birth and death totals are available only for freeholders' charter cities of which there were thirty-two in 1913, thirty-one in 1912, twenty-nine in 1911, twenty-six in 1910 and 1909, and twenty-four in 1908 and 1907. The additional city, San Rafael, shown for 1913 but not for 1912, reported only 39 births and 92 deaths, so that the totals for thirty-two cities in 1913 and thirty-one in 1912 are quite closely comparable. The following table presents birth and death totals for the several chartered cities in 1913 and 1912, together with the number and per cent of increase in each case.

TABLE 5.—Birth and Death Totals, with increase, for Individual Cities and Rest of State: 1913 and 1912.

City	Births		Deaths		Increase 1912 to 1913			
	1913	1912	1913	1912	Number		Per cent	
					Births	Deaths	Births	Deaths
CALIFORNIA	43,862	39,330	38,509	36,709	4,522	1,890	11.5	5.1
Freeholders' charter cities	27,759	24,827	23,519	22,322	2,932	1,197	11.8	5.4
<i>Northern California</i>								
Eureka	218	202	256	217	*	39	*	18.0
Napa	80	84	117	92	*	25	*	27.2
Petaluma	180	79	85	90	51	*	64.6	*
Santa Rosa	184	173	146	140	11	6	6.4	4.3
Grass Valley	24	42	71	62	*	9	*	14.5
<i>Central California</i>								
San Francisco	7,552	6,954	7,002	6,766	598	236	8.6	3.5
Alameda	372	357	290	325	15	*	4.2	*
Berkeley	737	629	456	439	108	17	17.2	3.9
Oakland	2,954	2,005	2,197	2,139	349	58	13.4	2.7
Richmond	297	233	150	135	64	24	27.5	17.8
San Rafael	39		92		39	92		
Monterey	69	75	67	66	*	1	*	1.5
Salinas	58	71	74	57	*	17	*	29.8
San Luis Obispo	106	124	101	108	*	*	*	*
Palo Alto	34	49	31	43	*	*	*	*
San Jose	596	523	452	472	63	*	12.0	*
Santa Cruz	121	141	174	182	*	*	*	*
Watsonville	187	162	90	93	25	*	15.4	*
Fresno	656	660	420	383	*	37	*	9.7
Sacramento	1,223	1,080	1,106	1,032	203	76	18.8	7.4
Stockton	237	313	400	596	*	*	*	*
Vallejo	200	182	170	136	18	34	9.9	25.0
Modesto	120	131	165	127	*	38	*	29.9
<i>Southern California</i>								
Los Angeles	8,216	7,262	6,198	5,665	954	533	13.1	9.4
Long Beach	450	346	482	324	104	158	30.1	48.8
Pasadena	638	554	470	534	84	*	15.2	*
Pomona	150	172	155	152	*	3	*	2.0
Santa Monica	190	143	176	168	47	8	32.9	4.8
Riverside	282	279	231	270	3	*	1.1	*
San Bernardino	247	190	323	298	57	25	30.0	8.4
San Diego	1,171	762	1,073	967	409	86	53.7	8.7
Santa Barbara	171	190	228	234	*	*	*	*
Rest of State	16,093	14,503	15,080	14,397	1,590	693	11.0	4.8

* Decrease.

For chartered cities as a class the birth total was 27,759 in 1913 and 24,827 in 1912, the gain being 2,932, or 11.8 per cent. The death total for cities was 23,519 in 1913 and 22,322 in 1912, the increase being 1,197, or 5.4 per cent.

For all the rest of the State the birth total was 16,093 in 1913 and 14,503 in 1912 (a gain of 1,590, or 11.0 per cent), while the death total was 15,080 in 1913 and 14,387 in 1912 (an increase of 693, or 4.8 per cent). The absolute and relative gains in both birth and death totals, especially births, were greater for chartered cities as a class than for the rest of California as a population group.

Of the thirty-one chartered cities shown for both 1913 and 1912, eighteen reported increases in birth registration for 1913 over 1912, while thirteen indicated decreases. Altogether twenty of the thirty-one cities reported more deaths in 1913 than in 1912 while eleven showed fewer deaths in the later year.

For the eighteen freeholders' chartered cities showing increases in birth registration the rates of gain ranged as follows: Petaluma, 64.6; San Diego, 53.7; Santa Monica, 32.9; Long Beach, 30.1; San Bernardino, 30.0; Richmond, 27.5; Sacramento, 18.8; Berkeley, 17.2; Watsonville, 15.4; Pasadena, 15.2; Oakland, 13.4; Los Angeles, 13.1; San Jose, 12.0; Vallejo, 9.9; San Francisco, 8.6; Santa Rosa, 6.4; Alameda, 4.2; and Riverside, 1.1.

For the twenty chartered cities reporting increased death totals the per cents of increase were as follows: Long Beach, 48.8; Modesto, 29.9; Salinas, 29.8; Napa, 27.2; Vallejo, 25.0; Eureka, 18.0; Richmond, 17.8; Grass Valley, 14.5; Fresno, 9.7; Los Angeles, 9.4; San Diego, 8.7; San Bernardino, 8.4; Sacramento, 7.4; Santa Monica, 4.8; Santa Rosa, 4.3; Berkeley, 3.9; San Francisco, 3.5; Oakland, 2.7; Pomona, 2.0; and Monterey, 1.5.

BIRTH AND DEATH TOTALS COMPARED.

Geographic Divisions.—Comparison of the birth and death totals for geographic divisions in 1913 and 1912, given in Table 6, shows that the birth registration exceeded the death total each year for Los Angeles, for San Francisco and other divisions of Central California, and for the interior counties of Northern California, as well as in 1913 alone for the counties south of Tehachapi outside Los Angeles. The excess of deaths over births shown for the coast counties of Northern California both years was considerably less in 1913 than in 1912. Improvement in the completeness of birth registration is also indicated by the fact that for the many geographic divisions reporting each year more births than deaths, the excess of births over deaths was generally greater both absolutely and relatively in 1913 than in 1912. Hence the excess of births over deaths for California as a whole was no less than 5,253, or 13.6 per cent, in 1913 against only 2,621, or 7.1 per cent, in the preceding year. The detailed figures are as follows:

TABLE 6.—Birth and Death Totals Compared, for Geographic Divisions: 1913 and 1912.

Geographic Division	1913		1912		Excess of births over deaths			
	Births	Deaths	Births	Deaths	Number		Per cent	
					1913	1912	1913	1912
THE STATE	43,852	38,509	39,830	36,709	5,253	2,021	13.6	7.1
<i>Northern California</i>	3,918	4,267	3,596	4,029	*349	*433	*8.2	*10.7
Coast counties	1,746	2,187	1,529	2,155	*441	*626	*20.2	*29.0
Interior counties	2,172	2,080	2,067	1,874	92	193	4.4	10.3
<i>Central California</i>	23,165	20,302	21,218	19,653	2,963	1,565	14.1	8.0
San Francisco	7,552	7,002	6,954	6,766	550	188	7.9	2.8
Other bay counties	5,736	4,802	5,068	4,470	1,184	588	24.6	13.2
Coast counties	2,585	2,431	2,455	2,332	154	123	6.3	5.3
Interior counties	7,292	6,267	6,751	6,085	1,025	666	16.4	10.9
<i>Southern California</i>	16,769	14,060	14,516	13,027	2,739	1,489	19.5	11.4
Los Angeles	11,967	9,705	10,406	8,890	2,262	1,518	23.3	17.1
Other counties	4,802	4,355	4,108	4,137	477	*29	11.0	*0.7
<i>Northern and Central California</i>	27,063	24,569	24,814	23,682	2,514	1,182	10.2	4.8
Coast counties	17,619	16,222	15,996	15,723	1,397	273	8.6	1.7
Interior counties	9,464	8,347	8,818	7,959	1,117	859	13.4	10.8
Metropolitan area	13,288	11,604	12,012	11,236	1,684	776	14.5	6.9
Rural counties	13,795	12,965	12,802	12,446	890	356	6.4	2.9

*Excess of deaths over births.

Cities.—Table 7 presents similar figures for the chartered cities (numbering thirty-two in 1913 and thirty-one in 1912) and for the rest of California.

TABLE 7.—Birth and Death Totals Compared, for Individual Cities and Rest of State: 1913 and 1912.

City	1913		1912		Excess of births over deaths			
	Births	Deaths	Births	Deaths	Number		Per cent	
					1913	1912	1913	1912
CALIFORNIA	43,852	38,509	39,330	36,709	5,253	2,621	13.6	7.1
Freeholders' charter cities	27,750	23,519	24,827	22,322	4,240	2,505	18.0	11.2
<i>Northern California</i>								
Eureka	218	256	262	217	*	45	*	20.7
Napa	80	117	84	92	*	*	*	*
Petaluma	130	85	79	90	45	*	52.9	*
Santa Rosa	184	146	173	140	38	33	26.0	23.6
Grass Valley	24	71	42	62	*	*	*	*
<i>Central California</i>								
San Francisco	7,552	7,002	6,954	6,766	550	188	7.9	2.8
Alameda	372	290	357	325	82	32	28.3	9.8
Berkeley	737	456	629	439	281	190	61.6	43.3
Oakland	2,954	2,197	2,605	2,139	757	466	34.5	21.8
Richmond	297	150	233	135	138	98	86.8	72.6
San Rafael	39	92	.....	.....	*	.....	*	.....
Monterey	99	67	75	66	2	9	8.0	13.6
Ballinas	58	74	71	57	*	14	*	24.6
San Luis Obispo	106	101	124	108	5	16	5.0	14.8
Palo Alto	34	31	49	43	3	6	9.7	14.0
San Jose	586	452	523	472	134	51	29.6	10.8
Santa Cruz	121	174	141	182	*	*	*	*
Watsonville	187	90	162	93	97	69	107.8	74.2
Fresno	656	420	600	383	236	277	56.2	72.3
Sacramento	1,283	1,108	1,060	1,032	175	48	15.8	4.7
Stockton	237	460	313	566	*	*	*	*
Vallejo	200	170	182	136	30	46	17.6	33.8
Modesto	120	165	131	127	*	4	*	3.1
<i>Southern California</i>								
Los Angeles	8,216	6,198	7,262	5,665	2,018	1,507	32.6	28.2
Long Beach	450	482	346	324	*	22	*	6.8
Pasadena	638	470	554	534	168	20	35.7	3.7
Pomona	150	155	172	152	*	20	*	13.2
Santa Monica	190	176	143	168	14	*	8.0	*
Glendale	282	231	279	270	51	9	22.1	3.3
San Bernardino	247	323	190	298	*	*	*	*
San Diego	1,171	1,073	762	987	98	*	9.1	*
Santa Barbara	171	228	190	234	*	*	*	*
Rest of State	10,093	15,080	14,503	14,387	1,013	116	6.7	0.8

*Excess of deaths over births.

For chartered cities as a class the excess of births over deaths was 4,240, or 18.0 per cent, in 1913 as compared with 2,505, or 11.2 per cent, in 1912. Similarly, for all the rest of the State the births exceeded the deaths by 1,013, or 6.7 per cent, in 1913 against merely 116, or 0.8 per cent, in 1912. The much greater excess of births over deaths shown each year for cities as a class than for the rest of the State taken together indicates that there is more complete registration of births within cities than outside them.

Of the thirty-two chartered cities shown for 1913, twenty reported more births than deaths, while of the thirty-one such cities in 1912 twenty-two showed an excess of births over deaths. Altogether seventeen cities reported more births than deaths in both 1913 and 1912. These seventeen cities were as follows: Santa Rosa in Northern California;

San Francisco, Alameda, Berkeley, Oakland, Richmond, Monterey, San Luis Obispo, Palo Alto, San Jose, Watsonville, Fresno, Sacramento, and Vallejo in Central California; and Los Angeles, Pasadena, and Riverside in Southern California. The three additional cities showing an excess of births over deaths for 1913 alone were Petaluma, Santa Monica and San Diego.

Reference to Table 7 shows that the relative excess of births over deaths was notably great in certain cities with per cents as follows for 1913 and 1912, respectively: Watsonville, 107.8 and 74.2; Richmond, 86.8 and 72.6; Fresno, 56.2 and 72.3; Berkeley, 61.6 and 43.3; Oakland, 34.5 and 21.8; Los Angeles, 32.6 and 28.2; Santa Rosa, 26.0 and 23.6; San Jose, 29.6 and 10.8; Alameda, 28.3 and 9.8; Vallejo, 17.6 and 33.8; and Sacramento, 15.8 and 4.7. The relative excess of births over deaths was particularly great for other cities, also, for 1913 alone, as follows: Petaluma, 52.9; Pasadena, 35.7; and Riverside, 22.1.

It may be noted that of the total birth registration for all California altogether 63.3 per cent was reported by the thirty-two chartered cities in 1913 and 63.1 per cent by the thirty-one such cities in 1912. Similarly, of the total deaths in the State some 60.9 per cent occurred in the thirty-two chartered cities in 1913 and 60.8 per cent in the thirty-one cities of this class in 1912. It appears, therefore, from the greater per cent of total births than of total deaths shown for freeholders' charter cities, as well as from the much greater excess of births over deaths within cities than outside them, that birth registration is somewhat more complete within these leading cities than in the outside rural territory.

BIRTH, DEATH AND MARRIAGE RATES.

Population Estimates.—Since the publication of the Federal Census results for 1910, population estimates can be obtained with strict accuracy on the basis of county and city totals for June 1, 1900, and April 15, 1910, the estimates being made for the sake of uniformity as of July 1, or the middle of each year. The estimated midyear population for both 1910 and 1911 has been calculated on the assumption that the numerical increase has been the same each month since April 15, 1910, as it was each month between June 1, 1900, and April 15, 1910. The average monthly increase is obtained by dividing the increase for the whole decade by 118.5 (the number of months between June 1, 1900, and April 15, 1910), and the total increase to July 1, 1912, is then got by multiplying by 26.5 (the number of months between April 15, 1910, and July 1, 1912), the increase to July 1, 1913, being obtained similarly by multiplying by 38.5 (the number of months between April 15, 1910, and July 1, 1913). The estimated midyear population for 1912 and 1913 is found, finally, by adding to the population enumerated April 15, 1910, the estimated increase to July 1, 1912 or 1913, as the case may be.

For the ten counties with few inhabitants showing decreases between 1900 and 1910, the census population of April 15, 1910, has been taken as the midyear estimate for both 1912 and 1913. Moreover, special estimates have been obtained from the Federal Census Bureau for six

cities (Berkeley, Oakland, Fresno, Los Angeles, Pasadena and Sacramento) to cover corrections for territory annexed between 1900 and 1910 or since 1910.

The estimated midyear population for Alameda County, for instance, was obtained as follows:

Population enumerated April 15, 1910	246,131
Population enumerated June 1, 1900	130,197
Increase, June 1, 1900, to April 15, 1910 (118.5 months)	115,934
Increase, April 15, 1910, to July 1, 1913 ($\times 38.5 \div 118.5$)	57,666
Increase, April 15, 1910, to July 1, 1912 ($\times 26.5 \div 118.5$)	25,926
Estimated midyear population, 1913	283,797
Estimated midyear population, 1912	272,057

Similarly, the estimated midyear population for Alameda city was obtained thus:

Population enumerated April 15, 1910	23,383
Population enumerated June 1, 1900	16,464
Increase, June 1, 1900, to April 15, 1910 (118.5 months)	6,919
Increase, April 15, 1910, to July 1, 1913 ($\times 38.5 \div 118.5$)	2,248
Increase, April 15, 1910, to July 1, 1912 ($\times 26.5 \div 118.5$)	1,547
Estimated midyear population, 1913	25,631
Estimated midyear population, 1912	24,930

Geographic Divisions.—The following table gives the estimated midyear population, births, deaths and marriages, and rates per 1,000 population for the several geographic divisions in both 1913 and 1912.

TABLE 8.—Estimated Midyear Population, Births, Deaths and Marriages, and Rates per 1,000 Population, for Geographic Divisions: 1913 and 1912.

Geographic division	Estimated midyear population	Births	Deaths	Marriages	Rate per 1,000 population		
					Births	Deaths	Marriages
1913							
THE STATE.....	2,671,491	43,852	38,599	31,383	16.4	14.4	11.7
Northern California.....	313,510	3,918	4,267	2,287	12.5	13.6	7.3
Coast counties.....	144,855	1,746	2,187	1,131	12.1	15.1	7.8
Interior counties.....	168,655	2,172	2,080	1,156	12.9	12.3	6.9
Central California.....	1,461,411	23,165	20,302	16,947	15.9	13.9	11.6
San Francisco.....	440,996	7,552	7,002	5,940	17.1	15.9	13.5
Other bay counties.....	379,364	5,736	4,602	4,583	15.1	12.1	12.1
Coast counties.....	173,228	2,585	2,431	1,681	14.9	14.0	9.7
Interior counties.....	467,823	7,292	6,267	4,743	15.6	13.4	10.1
Southern California.....	886,570	16,769	14,030	12,149	18.7	15.6	13.6
Los Angeles.....	612,592	11,967	9,705	7,584	19.5	15.8	12.4
Other counties.....	283,978	4,802	4,325	4,565	16.9	15.2	16.1
Northern and Central California.....	1,774,921	27,083	24,569	19,234	15.3	13.8	10.8
Coast counties.....	1,138,443	17,619	16,222	13,335	15.5	14.2	11.7
Interior counties.....	636,478	9,464	8,347	5,899	14.9	13.1	9.3
Metropolitan area.....	820,300	13,288	11,604	10,523	16.2	14.1	12.8
Rural counties.....	954,561	13,795	12,965	8,711	14.5	13.6	9.1
1912							
THE STATE.....	2,579,874	39,330	36,709	31,276	15.2	14.2	12.1
Northern California.....	306,819	3,596	4,029	2,328	11.6	13.0	7.5
Coast counties.....	142,477	1,529	2,155	1,176	10.7	15.1	8.3
Interior counties.....	166,342	2,067	1,874	1,152	12.4	11.3	6.9
Central California.....	1,419,761	21,218	19,653	17,271	14.9	13.8	12.2
San Francisco.....	433,490	6,964	6,766	6,102	16.0	15.6	14.1
Other bay counties.....	363,824	5,058	4,470	4,710	13.9	12.3	12.9
Coast counties.....	169,495	2,455	2,332	1,737	14.5	13.8	10.2
Interior counties.....	452,952	6,751	6,085	4,722	14.9	13.4	10.4
Southern California.....	851,294	14,516	13,027	11,677	17.1	15.3	13.7
Los Angeles.....	578,786	10,408	8,890	7,490	18.0	15.4	12.9
Other counties.....	272,508	4,108	4,137	4,187	15.1	15.2	15.4
Northern and Central California.....	1,728,580	24,814	23,682	19,599	14.4	13.7	11.3
Coast counties.....	1,109,286	15,996	15,723	13,725	14.4	14.2	12.4
Interior counties.....	619,294	8,818	7,959	5,874	14.2	12.9	9.5
Metropolitan area.....	797,314	12,012	11,236	10,812	15.1	14.1	13.6
Rural counties.....	931,266	12,802	12,446	8,787	13.7	13.4	9.4

For California in 1913 and 1912 the estimated midyear population was 2,671,491 and 2,579,874, respectively, giving birth rates of 16.4 and 15.2, death rates of 14.4 and 14.2, and marriage rates of 11.7 and 12.1.

It may be added that for preceding years the estimated midyear population of California was as follows: 1911, 2,488,256; 1910, 2,396,639; 1909, 2,306,001; 1908, 2,215,615; 1907, 2,125,240; and 1906, 2,034,861. For populations thus estimated the birth rates were 14.0 for 1911, 13.4 for both 1910 and 1909, 12.7 for 1908, 11.6 for 1907, and 10.3 for 1906; the death rates were, respectively, 13.7, 13.5, 13.4, 14.1, 14.6, and 14.4; and the marriage rates were, respectively, 11.0, 10.4, 9.9, 9.8, 10.8, and 10.5.

The birth rates for 1913 and 1912 are thus by far the highest in the whole eight-year period, while the death rates for 1913 and 1912 are about the same as for 1906 to 1908, and the marriage rates for 1913 and 1912, like the birth rates, are above the rates for all preceding years from 1906 to 1911.

The birth rates for 1913 and 1912, as for previous years, are somewhat higher for the territory south of Tehachapi than for that to the north, being 18.7 and 17.1 for Southern California against 15.3 and 14.4 for Northern and Central California together. The birth rates for Central California alone were 15.9 in 1913 and 14.9 in 1912, but only 12.5 and 11.6 for Northern California alone. Each year the birth rate was somewhat higher for the coast counties than for the interior counties north of Tehachapi. The rates were also much higher both years for the metropolitan area, comprising San Francisco and the other bay counties, 16.2 and 15.1, than for the rural counties of Northern and Central California, 14.5 and 13.7. The rates were likewise higher for San Francisco, 17.1 in 1913 and 16.0 in 1912, than for the other bay counties, 15.1 and 13.9, respectively. The birth rates were also higher for Los Angeles, 19.5 and 18.0, than for the rest of Southern California, 16.9 and 15.1.

The death rates for 1913 and 1912 are slightly more for Southern California, 15.6 and 15.3, than for the territory north of Tehachapi, 13.8 and 13.7, being 13.9 and 13.8 for Central California alone and 13.6 and 13.0 for Northern California. Each year the death rate was somewhat higher for the coast than for the interior counties north of Tehachapi. In both years, moreover, the death rates were higher for the metropolitan area (14.1 each year) than for the rural counties of Northern and Central California (13.6 in 1913 and 13.4 in 1912); for San Francisco, the metropolis (15.9 and 15.6), than for the group of other bay counties (12.1 and 12.3); and for Los Angeles (15.8 and 15.4) than for the rest of Southern California (15.2 each year).

The marriage rates for 1913 and 1912 are somewhat higher for the territory south of Tehachapi than for that to the north, being 13.6 and 13.7 for Southern California against 10.8 and 11.3 for Northern and Central California together. The marriage rates were 11.6 in 1913 and 12.2 in 1912 for Central California as compared with only 7.3 and 7.5 for Northern California. Each year the rate was much higher for the coast counties than for the interior counties north of Tehachapi. The marriage rates were also higher both years for the

metropolitan area (12.8 and 13.6) than for the rural counties of Northern and Central California (9.1 and 9.4) and were likewise higher for San Francisco alone (13.5 and 14.1) than for the group of other bay counties (12.1 and 12.9). On the other hand, however, the rates were lower for Los Angeles (12.4 and 12.9) than for the rest of Southern California (16.1 and 15.4).

Counties.—Table 9 presents similar figures on birth, death and marriage rates per 1,000 estimated midyear population for counties arranged alphabetically for the sake of ready reference.

TABLE 9.—Estimated Midyear Population, Births, Deaths and Marriages, and Rates per 1,000 Population, for Counties: 1913 and 1912.

County	1913						1912							
	Estimated mid-year population	Births	Deaths	Marriages	Rate per 1,000 population			Estimated mid-year population	Births	Deaths	Marriages	Rate per 1,000 population		
					Births	Deaths	Marriages					Births	Deaths	Marriages
CALIFORNIA	2,671,401	43,852	38,500	31,353	16.4	14.4	11.7	2,579,874	39,330	36,709	31,276	15.2	14.2	12.1
Alameda	283,797	4,406	3,613	2,874	15.5	12.7	10.1	272,057	3,803	3,581	2,821	14.3	13.2	10.4
Alpine	309	6	3		19.4	9.7		309	3	3	2	9.7	9.7	6.5
Amador	9,086	108	132	64	11.9	16.7	7.0	9,086	92	114	62	10.1	12.5	6.6
Butte	30,610	461	367	223	15.1	12.0	7.3	29,578	473	405	252	16.0	13.7	8.5
Calaveras	9,171	104	111	29	11.3	12.1	3.2	9,171	97	98	35	10.6	10.7	3.3
Colusa	7,852	96	87	34	12.2	11.1	4.3	7,814	97	97	32	12.4	12.4	4.1
Contra Costa	36,102	632	396	239	17.5	11.0	6.6	34,722	483	331	210	13.9	9.5	6.0
Del Norte	2,420	24	30	24	9.9	12.4	9.9	2,419	31	31	21	12.8	12.8	8.7
El Dorado	7,492	92	119	39	12.3	16.9	5.2	7,492	106	129	44	14.1	17.2	5.9
Fresno	87,966	1,623	1,106	954	18.5	12.6	10.8	84,109	1,678	1,044	973	20.0	12.4	11.6
Glenn	7,829	113	63	64	14.4	8.0	8.2	7,624	127	68	66	16.7	8.9	8.7
Humboldt	36,051	406	422	281	11.3	11.7	7.8	35,397	475	391	329	13.4	11.1	9.3
Imperial	15,983	257	266	205	16.1	10.6	12.8	15,247	184	156	154	12.1	10.2	10.1
Inyo	7,818	15	44	50	1.9	5.6	6.4	7,555	9	41	26	1.2	5.4	3.4
Kern	44,614	630	524	423	13.9	11.7	9.5	42,464	541	528	464	12.7	12.4	10.9
Kings	18,293	249	203	188	13.6	11.1	10.3	17,632	243	188	239	13.8	10.7	13.5
Lake	5,526	79	97	35	14.3	17.6	6.3	5,526	76	100	37	13.8	18.1	6.7
Lassen	4,867	45	74	36	9.2	15.1	7.4	4,867	46	37	37	9.5	7.6	7.8
Los Angeles	612,592	11,967	9,705	7,884	19.5	15.8	12.4	578,786	10,408	8,890	7,400	18.0	15.4	12.9
Madera	9,019	153	108	89	17.0	11.4	9.9	8,816	125	68	93	14.2	7.7	10.5
Marin	28,172	219	278	1,089	7.8	9.9	38.7	27,219	251	253	1,294	9.2	9.3	47.5
Mariposa	8,956	25	28	5	6.3	7.1	1.3	8,956	23	23	8	5.8	5.8	2.0
Mendocino	25,054	338	325	180	13.5	13.0	7.2	24,704	304	332	193	8.3	13.4	7.8
Merced	17,076	276	186	147	16.2	10.9	8.6	16,475	270	176	138	16.4	10.7	8.4
Modoc	6,553	88	46	53	13.4	7.0	8.1	6,440	79	32	58	12.3	5.0	9.0
Mono	2,042	2	5	2	1.0	2.4	1.0	2,042	8	11	6	3.9	5.4	2.9
Monterey	26,094	343	320	168	13.5	12.5	6.5	25,212	308	274	202	12.2	10.9	8.0
Napa	20,888	166	535	189	7.9	25.6	9.0	20,549	174	528	159	8.5	25.7	7.7
Nevada	14,955	133	235	76	8.9	15.7	5.1	14,955	160	222	91	10.7	14.8	6.1
Orange	39,225	791	541	1,359	18.4	13.8	34.6	37,732	638	515	1,299	16.9	13.0	34.2

BUREAU OF VITAL STATISTICS.

43

Placer	19,083	390	301	89	16.8	15.8	4.7	18,785	228	214	111	12.1	11.4	5.9
Plumas	5,455	50	59	36	9.3	10.8	4.8	5,394	55	48	25	10.3	8.9	4.6
Riverdale	40,154	575	460	415	14.3	11.5	10.3	38,453	533	510	448	14.4	13.8	11.7
Sacramento	74,918	1,884	1,301	1,143	21.1	17.4	15.3	72,701	1,338	1,213	1,142	18.4	16.7	15.7
San Benito	8,496	132	92	50	15.5	10.8	5.9	8,356	136	89	76	16.3	10.3	9.1
San Bernardino	66,055	999	1,048	680	15.1	15.9	10.3	63,141	937	1,042	650	14.7	16.5	10.3
San Diego	73,523	1,574	1,397	1,410	21.8	19.3	19.5	68,991	1,079	1,294	1,184	15.6	18.3	10.4
San Francisco	440,998	7,552	7,002	5,940	17.1	15.9	13.5	433,490	6,954	6,765	6,102	16.0	15.6	14.1
San Joaquin	55,095	715	654	692	12.8	17.1	13.4	54,149	601	1,088	620	11.1	20.1	11.5
San Luis Obispo	20,275	283	205	186	14.0	10.1	9.2	19,997	268	205	185	13.4	10.3	9.3
San Mateo	31,293	479	315	331	15.3	10.1	13.2	29,826	431	305	385	14.5	10.2	12.9
Santa Barbara	30,598	429	353	314	14.0	11.5	10.3	29,707	464	380	297	15.6	12.1	10.0
Santa Clara	91,117	1,427	1,444	1,024	16.7	15.8	11.2	86,755	1,356	1,899	1,004	15.3	15.6	11.3
Santa Cruz	27,644	395	370	253	14.3	13.4	9.2	27,175	388	378	270	14.3	13.9	9.9
Shasta	19,440	225	192	141	11.6	9.9	7.3	19,278	238	182	121	12.3	9.4	6.3
Sierra	4,124	30	46	11	7.8	11.2	2.7	4,116	33	40	11	8.0	9.7	2.7
Siakiyou	19,398	207	205	164	10.7	10.6	8.5	19,212	224	167	143	11.7	8.7	7.4
Solano	28,699	353	371	174	12.3	12.9	6.1	28,323	347	315	164	12.3	11.1	5.8
Sonoma	51,615	704	735	468	13.6	14.2	7.9	50,611	540	712	427	10.7	14.1	8.4
Stanislaus	26,737	529	380	230	19.3	12.3	8.6	25,423	568	331	239	21.9	13.0	9.4
Sutter	6,472	142	76	36	21.9	11.7	5.6	6,427	89	66	28	13.8	10.3	4.4
Tehama	11,533	136	143	109	11.8	12.4	9.5	11,492	113	146	106	9.8	12.7	9.2
Trinity	3,301	29	43	14	8.8	13.0	4.2	3,301	29	61	10	8.8	13.5	3.0
Tulare	40,984	613	415	340	15.0	10.1	8.3	39,256	521	393	324	13.3	10.0	8.8
Tuolumne	9,979	47	133	50	4.7	13.3	5.0	9,979	44	130	50	4.4	13.0	5.0
Ventura	19,640	247	260	182	12.6	13.2	9.8	19,237	263	290	214	13.7	13.5	11.1
Yolo	14,023	178	179	125	12.7	12.8	8.9	13,995	147	198	98	10.5	13.8	6.6
Yuba	10,504	125	136	94	11.9	17.7	8.9	10,360	105	149	71	10.1	13.4	6.9

The individual counties with birth rates above the State averages of 16.4 and 15.2 in 1913 and 1912, respectively, are as follows: Sacramento, 21.1 and 18.4; San Diego, 21.8 and 15.6; Stanislaus, 19.8 and 21.9; Los Angeles, 19.5 and 18.0; Fresno, 18.5 and 20.0; Orange, 18.4 and 16.9; and San Francisco, 17.1 and 16.0. The birth rate was also above the general average only for 1913 (16.4) in the following counties: Sutter, 21.9; Alpine, 19.4; Contra Costa, 17.5; Madera, 17.0; and Placer, 16.8. Similarly, the birth rate was above the State average for 1912 alone (15.2) in the following counties: Glenn, 16.7; Merced, 16.4; San Benito, 16.3; Butte, 16.0; Santa Barbara, 16.6; and Santa Clara, 15.3.

Among the individual counties, Napa shows the highest death rates, 25.6 for 1913 and 25.7 for 1912, this unenviable prominence being explained, however, by the many deaths of aged persons occurring at the Napa State Hospital and the Veterans' Home of California located in this county of relatively small population. The death rates in 1913 and 1912, respectively, were next highest for the following counties: San Diego, 19.3 and 18.8; San Joaquin, 17.1 and 20.1; Lake, 17.6 and 18.1; Sacramento, 17.4 and 16.7; Yuba, 17.7 and 14.4; El Dorado, 15.9 and 17.2; San Bernardino, 15.9 and 16.5; San Francisco, 15.9 and 15.6; Santa Clara, 15.8 and 15.6; Los Angeles, 15.8 and 15.4; and Nevada, 15.7 and 14.8. These are the counties with death rates above the State averages of 14.4 for 1913 and 14.2 for 1912. The death rate also exceeded the general average only for 1913 (14.4) in each of the following additional counties: Amador, 16.7; Imperial, 16.6; Placer, 15.8; and Lassen, 15.1. The death rate was likewise above the State average of 14.2 for 1912 alone in Trinity, 18.5.

Among the individual counties, Marin, adjoining San Francisco, shows by far the highest marriage rates, 35.7 in 1913 and 47.5 in 1912, while Orange, adjoining Los Angeles, shows the second highest rates, 34.6 and 34.2 in 1913 and 1912, respectively. The marriage rates are also notably high for the following counties: San Diego, 19.5 and 16.4; Sacramento, 15.2 and 15.7; San Francisco, 13.5 and 14.1; Los Angeles, 12.4 and 12.9; and San Mateo, 12.2 and 12.9. These are the counties with marriage rates above both State averages, 11.7 for 1913 and 12.1 for 1912. The marriage rate was also above the State average of 11.7 for 1913 alone for Imperial (12.8) and San Joaquin (12.4) and was likewise above the general average of 12.1 only for 1912 for Kings (13.5).

The counties mentioned as having high marriage rates will be recognized generally as counties having large cities. Moreover, the marriage rates are much higher for the metropolitan area than for the rural counties north of Tehachapi. It seems, therefore, that there is a strong tendency for marriageable persons living in the country to go to an urban center to be married; if not to the metropolis itself, then to the largest city accessible for a satisfactory celebration of the event. On the other hand, there is a counter movement by which couples living in metropolitan centers like San Francisco or Los Angeles select for their place of marriage not the metropolis proper, but instead a sub-urban city or town. This is shown by the very great proportion of

marriages to resident inhabitants for Marin and San Mateo counties in the suburbs of San Francisco and for Orange County, adjoining Los Angeles. In short, country swains like to celebrate marriage in large cities, while couples belonging to a metropolis are apt to prefer the suburbs.

Cities.—Table 10 gives the birth and death rates per 1,000 estimated midyear population for the thirty-two freeholders' charter cities in 1913 and the thirty-one such cities in 1912, in comparison with all the rest of the State as a whole.

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 10.—Estimated Midyear Population, Births and Deaths, and Rates per 1,000 Population, for Individual Cities and Rest of State: 1913 and 1912.

City	Estimated midyear population		Births		Deaths		Rate per 1,000 population			
	1913	1912	1913	1912	1913	1912	Births	Deaths	1913	1912
CALIFORNIA										
Freeholders' charter cities	2,671,491	2,579,874	48,832	39,380	38,599	36,709	16.4	14.4	15.2	14.3
<i>Northern California.</i>	1,533,300	1,464,464	27,759	24,827	23,519	22,322	18.1	15.3	17.0	15.2
<i>Eureka</i>	13,313	12,865	218	262	256	217	16.4	19.2	20.4	16.9
Napa	6,361	6,183	80	84	117	92	12.6	18.4	13.6	14.9
Petaluma	6,533	6,329	130	79	85	90	19.9	12.5	13.0	14.2
Santa Rosa	8,189	8,073	184	173	146	140	22.5	17.8	21.4	17.3
Grass Valley	4,520	4,520	24	42	71	62	5.3	15.7	9.3	13.7
<i>Central California.</i>										
San Francisco	440,998	433,400	7,552	6,954	7,002	6,766	17.1	15.9	16.0	15.6
Alameda	25,631	24,680	372	357	290	325	14.5	11.3	14.3	13.0
Berkeley	49,831	46,568	737	629	456	439	14.9	9.2	13.5	9.4
Oakland	175,201	167,401	2,954	2,605	2,197	2,139	16.9	12.5	15.6	12.8
Richmond	7,762	7,465	297	233	159	135	38.3	20.5	31.2	18.1
San Rafael	6,602		89		92		5.9	13.9		
Monterey	5,956	5,633	69	75	67	66	11.6	13.3	11.3	11.7
Salinas	3,876	3,833	58	71	74	57	9.9	18.5	19.1	14.9
San Luis Obispo	5,861	5,685	106	124	101	108	18.1	22.0	17.3	19.2
Palo Alto	5,406	5,118	34	49	31	43	6.3	9.6	5.7	8.4
San Jose	31,895	30,611	586	523	452	472	18.7	17.1	14.4	15.4
Santa Cruz	12,929	12,373	121	141	174	182	9.4	11.4	13.5	14.7
Watsonville	4,744	4,661	167	162	90	98	39.4	34.8	19.0	30.0
Fresno	28,640	27,473	656	660	420	383	23.9	24.0	14.7	18.9
Sacramento	60,623	58,539	1,283	1,080	1,062	1,062	21.2	18.4	18.3	17.6
Stockton	25,130	24,538	237	313	460	596	9.4	12.8	18.3	23.9
Vallejo	12,437	12,095	200	182	170	136	16.1	15.0	18.7	11.2
Modesto	4,687	4,483	120	131	165	127	25.6	35.2	29.2	23.3
<i>Southern California.</i>										
Los Angeles	412,466	386,014	8,216	7,292	6,108	5,665	19.9	18.8	16.0	14.7
Long Beach	22,833	21,268	450	346	482	324	19.7	21.1	16.3	15.2
Pasadena	38,864	36,848	688	554	470	534	16.6	15.5	12.3	14.9
Pomona	11,723	11,254	150	173	155	162	12.8	18.2	15.3	13.5

Santa Monica	9,403	8,918	190	143	176	168	20.2	16.0	18.7	18.8
Riverdale	17,564	16,831	282	279	231	270	16.1	16.6	18.2	16.0
San Bernardino	14,833	14,261	247	190	823	298	16.5	18.3	21.6	20.9
San Diego	46,666	44,471	1,171	762	1,073	987	25.1	17.1	23.0	22.2
Santa Barbara	13,307	12,793	171	190	228	234	12.9	14.9	17.1	18.8
Rest of State	1,188,101	1,115,410	16,068	14,503	15,080	14,887	14.1	13.0	13.3	12.9

The birth rate per 1,000 population is much higher for chartered cities as a class, 18.1 in 1913 and 17.0 in 1912, than for all the rest of the State, merely 14.1 and 13.0 respectively. The death rate is also somewhat higher for chartered cities, 15.3 and 15.2 in 1913 and 1912, respectively, than for the rest of California, only 13.3 and 12.9.

The birth rates exceeded the city averages of 18.1 and 17.0 for 1913 and 1912, respectively, in the following cities: Watsonville, 39.4 and 34.8; Richmond, 38.3 and 31.2; Modesto, 25.6 and 29.2; Fresno, 22.9 and 24.0; Santa Rosa, 22.9 and 24.0; San Diego, 25.1 and 17.1; Sacramento, 21.2 and 18.4; Los Angeles, 19.9 and 18.8; San Luis Obispo, 18.1 and 22.0; and San Jose, 18.7 and 17.1. The birth rate was also above the city average for 1913 alone (18.1) for Santa Monica, 20.2; Petaluma, 19.9; and Long Beach, 19.7. Similarly, the birth rate surpassed the city average only for 1912 (17.1) for Eureka, 20.4, and for Salinas, 18.5.

The death rates surpassed the city averages of 15.3 in 1913 and 15.2 in 1912 for the following cities: Modesto, 35.2 and 28.2; San Diego, 23.0 and 22.2; San Bernardino, 21.6 and 20.9; Richmond, 20.5 and 18.1; Long Beach, 21.1 and 15.2; Eureka, 19.2 and 16.9; Watsonville, 19.0 and 20.0; Santa Monica, 18.7 and 18.8; Stockton, 18.3 and 23.9; Sacramento, 18.3 and 17.6; Santa Rosa, 17.8 and 17.3; San Luis Obispo, 17.3 and 19.2; Santa Barbara, 17.1 and 18.3; and San Francisco, 15.9 and 15.6. The death rate also exceeded the city average of 15.3 in 1913 alone for Salinas (19.1), Napa (18.4), and Grass Valley (15.7). Likewise the death rate was above the city average of 15.2 only in 1912 for Riverside, 16.0, and for San Jose, 15.4.

On the other hand, the death rates were remarkably low in both 1913 and 1912 for certain cities, as follows: Palo Alto, 5.7 and 8.4; Berkeley, 9.2 and 9.4; Monterey, 11.3 and 11.7; Alameda, 11.3 and 13.0; Oakland, 12.5 and 12.8; Pasadena, 12.3 and 14.9; Pomona, 13.2 and 13.5; Petaluma, 13.0 and 14.2; Vallejo, 13.7 and 11.2; Santa Cruz, 13.5 and 14.7; and Fresno, 14.7 and 13.9. The death rates were also notably low in 1913 alone for Riverside, 13.2; San Rafael, 13.9; and San Jose, 14.4.

TABLE 11.—Deaths Reported for Registration Districts (Cities, Towns, and Rural Parts of Counties): 1913 and 1912.

(Cities or incorporated towns not reporting deaths omitted from table.)

Registration district	Deaths		Registration district	Deaths	
	1913	1912		1913	1912
CALIFORNIA	88,569	86,709	Lassen County	74	37
Alameda County	3,613	3,581	Los Angeles County	9,705	8,890
Rural	481	466	Rural	1,217	1,175
Alameda	290	325	Alhambra	75	78
Albany	10	15	Arcadia	1	—
Berkeley	456	489	Avalon	3	—
Emeryville	16	13	Azusa	23	30
Hayward	45	36	Burbank	23	14
Livermore	28	46	Claremont	17	12
Oakland	2,197	2,189	Compton	13	13
Piedmont	14	22	Covina	25	10
Pleasanton	19	15	El Monte	18	—
San Leandro	57	66	Glendale	111	85
Alpine County	3	—	Glendora	16	13
Amador County	152	114	Hermosa Beach	17	9
Rural	88	72	Huntington Park	26	23
Jackson	51	42	Inglewood	22	19
Sutter Creek	13	—	Long Beach	482	324
Butte County	367	406	Lordsburg	14	20
Rural	228	227	Los Angeles	6,196	5,665
Biggs	4	8	Manhattan Beach	4	—
Chico	77	100	Monrovia	163	163
Gridley	6	21	Pasadena	470	534
Oroville	52	50	Pomona	155	152
Calaveras County	111	98	Redondo Beach	56	42
Rural	96	98	San Fernando	23	18
Angels	18	—	San Gabriel	27	—
Colusa County	87	97	Santa Monica	176	168
Rural	68	73	Sawtelle	49	41
Colusa	19	24	Sierra Madre	51	50
Contra Costa County	396	331	South Pasadena	82	60
Rural	96	92	Venice	54	63
Antioch	42	8	Vernon	—	2
Concord	7	7	Watts	28	25
Martinez	63	63	Whittier	65	68
Pittsburg	29	26	Madera County	103	68
Richmond	159	135	Marin County	178	253
Del Norte County	30	31	Rural	239	137
El Dorado County	119	129	Larkspur	2	1
Rural	60	71	Mill Valley	23	23
Placerville	59	58	Ross	1	—
Fresno County	1,106	1,044	San Anselmo	4	5
Rural	617	594	San Rafael	92	63
Coalinga	27	34	Sausalito	17	24
Fresno	420	388	Mariposa County	28	23
Kingsburg	3	3	Mendocino County	325	332
Seima	39	30	Rural	214	206
Glenn County	63	68	Fort Bragg	54	64
Rural	48	55	Point Arena	5	6
Orland	5	11	Potter Valley	6	5
Willows	10	2	Ukiah	32	39
Humboldt County	422	391	Willits	14	12
Rural	154	156	Merced County	186	176
Blue Lake	5	4	Rural	132	132
Eureka	256	217	Los Banos	12	9
Fortuna	7	14	Merced	42	35
Imperial County	266	156	Modoc County	46	32
Rural	213	135	Rural	35	23
Brawley	24	8	Alturas	11	9
Calexico	18	6	Mono County	5	11
Imperial	11	7	Monterey County	320	274
Inyo County	44	41	Rural	133	116
Rural	31	32	Monterey	67	66
Bishop	13	9	Pacific Grove	40	35
Kern County	524	528	Salinas	74	57
Rural	163	172	Napa County	535	528
Bakersfield	321	327	Rural	388	423
Maricopa	11	21	Calistoga	15	7
Taft	24	6	Napa	117	92
Tehachapi	5	2	St. Helena	15	6
Kings County	203	188	Nevada County	235	222
Rural	105	92	Rural	132	124
Hanford	83	81	Grass Valley	71	62
Lemoore	15	15	Nevada City	32	36
Lake County	97	100	Orange County	541	515
Rural	76	87	Rural	192	153
Lakeport	21	13			

*Formerly Black Diamond.

†Formerly Ocean Park.

TABLE 11.—Deaths Reported for Registration Districts (Cities, Towns, and Rural Parts of Counties): 1913 and 1912—Continued.

(Cities or incorporated towns not reporting deaths omitted from table.)

Registration district	Deaths		Registration district	Deaths	
	1913	1912		1913	1912
Orange County—Continued.			Santa Clara County—Cont.		
Anaheim	73	99	Mountain View	8	14
Fullerton	49	50	Palo Alto	31	43
Huntington Beach	25	12	San Jose	452	472
Newport Beach	7	5	Santa Clara	46	59
Orange	29	40	Santa Cruz County	370	378
Santa Ana	166	156	Rural	99	94
Placer County	301	214	Boulder Creek	7	9
Rural	139	94	Santa Cruz	174	182
Auburn	78	71	Watsonville	90	98
Colfax	22	4	Shasta County	192	182
Lincoln	12	12	Rural	148	138
Rocklin	22	17	Redding	46	44
Roseville	27	16	Sierra County	48	40
Plumas County	59	48	Rural	38	34
Riverside County	460	510	Loyalton	8	6
Rural	125	163	Siskiyou County	205	167
Banning	27	—	Rural	187	96
Beaumont	13	—	Dorris	1	2
Corona	43	58	Dunsmuir	23	23
Elsinore	13	9	Etna	6	3
Riverside	231	270	Montague	1	3
San Jacinto	8	10	Yreka	37	40
Sacramento County	1,301	1,212	Solano County	371	315
Rural	193	180	Rural	106	106
Sacramento	1,108	1,032	Benicia	22	16
San Benito County	92	86	Dixon	14	6
Rural	43	43	Fairfield	13	14
Hollister	40	38	Rio Vista	12	14
San Juan	9	—	Suisun	5	8
San Bernardino County	1,048	1,042	Vacaville	29	15
Rural	409	386	Vallejo	170	136
Colton	80	75	Sonoma County	735	712
Needles	4	—	Rural	398	397
Ontario	63	68	Cloverdale	25	12
Redlands	150	194	Healdsburg	52	35
San Bernardino	323	298	Petaluma	85	90
Upland	19	22	Santa Rosa	148	140
San Diego County	1,397	1,294	Sebastopol	28	23
Rural	131	194	Sonoma	8	15
Chula Vista	26	—	Stanislaus County	330	331
Coronado	28	25	Rural	104	134
East San Diego	29	—	Modesto	165	127
Escondido	18	25	Newman	14	12
La Mesa	14	—	Oakdale	25	21
National City	65	43	Turlock	22	37
Oceanside	13	20	Sutter County	76	66
San Diego	1,073	987	Rural	57	58
San Francisco (city and county)	7,002	6,766	Yuba City	19	13
San Joaquin County	954	1,088	Tehama County	143	146
Rural	443	455	Rural	78	66
Lodi	47	41	Corning	9	14
Stockton	460	586	Red Bluff	45	63
Tracy	4	6	Tehama	11	4
San Luis Obispo County	205	205	Trinity County	43	61
Rural	65	60	Tulare County	415	393
Arroyo Grande	8	9	Rural	204	235
Paso de Robles	31	28	Dinuba	28	20
San Luis Obispo	101	108	Exeter	3	9
San Mateo County	315	305	Lindsay	26	3
Rural	174	177	Porterville	31	31
Burlingame	14	19	Tulare	31	34
Daly City	13	1	Visalia	92	61
Hillsborough	—	1	Tuolumne County	133	130
Redwood City	30	38	Ventura County	260	260
San Mateo	68	52	Rural	85	82
South San Francisco	16	17	Oxnard	62	51
Santa Barbara County	353	360	San Buenaventura	72	75
Rural	79	83	Santa Paula	41	52
Lompoc	14	17	Yolo County	179	193
Santa Barbara	228	234	Rural	188	120
Santa Maria	32	26	Winters	6	23
Santa Clara County	1,444	1,389	Woodland	35	50
Rural	821	722	Yuba County	188	149
Gilroy	34	37	Rural	36	35
Los Gatos	52	37	Marysville	145	113
Mayfield	—	5	Wheatland	5	3

II. STATISTICS OF BIRTHS: 1913 AND 1912.

SYNOPSIS.

Births By Sex, Race and Maternal Nativity.—The 43,852 babies in 1913 included 22,699 boys and 21,153 girls, while of the 39,330 in 1912 the males were 20,231 and the females 19,099. The per cent male was 51.8 in 1913 against 51.4 in 1912, the preponderance of males increasing somewhat.

For births in freeholders' charter cities, the per cents male were 51.4 and 51.2 in 1913 and 1912, respectively, against 52.3 and 51.8 for the rest of California. The per cent male increased both within cities and outside them.

The race distribution of births in 1913 was: White, 40,864; Japanese, 2,215; Chinese, 381; negro, 343, and Indian, 49. The figures for 1912 were: White, 37,194; Japanese, 1,467; Chinese, 321; negro, 319, and Indian, 29. The per cent white decreased steadily through the past eight years, thus: 98.4 (1906), 97.7, 96.8, 96.3, 96.1, 95.5, 94.6 and 93.2 (1913).

For chartered cities the per cent white was 93.9 in 1913 and 94.6 in 1912, while for the rest of the State the per cents were 91.9 and 94.5, respectively.

The preponderance of males is greater, both within cities and outside them, among the few non-Caucasian babies than among the many white infants.

The nativity of the white mothers in 1913 and 1912 was: Born in other states, 16,305 and 14,613; born in California, 12,864 and 11,864; and foreign born, 11,695 and 10,717.

The per cent distribution of white mothers was for 1913 and 1912, respectively: Other states, 39.9 and 39.3; California, 31.5 and 31.9; and foreign countries, 28.6 and 28.8. The annual average per cents for 1909 to 1913 were: Other American, 38.0; Californian, 33.4; and foreign, 28.6.

For cities the per cent of mothers born in other states was 38.5 in 1913 and 37.8 in 1912; the per cents foreign born were 31.4 and 31.9; and the per cents born in California were 30.1 and 30.3. For the rural districts the per cents in 1913 and 1912 were, respectively: Other states, 42.3 and 41.9; California, 33.9 and 34.6; and foreign, only 23.8 and 23.5.

Statistical tables have been prepared to show the proportion of the sexes among children born to white mothers classified by nativity. However, differences between geographic divisions and between urban and rural districts prevent the drawing of general conclusions about the effect of maternal nativity on the preponderance of male births.

Nativity of Brides and Mothers.—Comparison of the per cent distribution of white brides and mothers, by nativity, shows that throughout California a larger portion of the brides than of the mothers were born in this State. Similarly, but in less degree, a larger proportion of the brides than the mothers were natives of other states. On the other hand, a much larger proportion of the mothers than of the brides in California were foreign born.

There is likewise an excess in the per cent born in California among single brides over that among mothers, though there is relatively little

difference in the per cents born elsewhere in the United States for single brides and mothers. However there is a great excess in the per cent born abroad among mothers over that for single brides.

It seems, therefore, that in California, as elsewhere in the United States, the fecundity of foreign born women is greater than that of native women, whether born in California or other states.

BIRTHS BY SEX, RACE AND MATERNAL NATIVITY.

Sex.—The following table gives the classification of births by sex, with per cents, for the several geographic divisions in both 1913 and 1912:

TABLE 1.—Births Classified by Sex, with Per Cents, for Geographic Divisions*: 1913 and 1912.

Geographic Division	Births						Per cent male		Per cent female	
	Total		Male		Female		1913	1912	1913	1912
	1913	1912	1913	1912	1913	1912				
THE STATE-----	43,852	39,330	22,699	20,231	21,153	19,099	51.8	51.4	48.2	48.6
Northern California-----	3,918	3,596	2,025	1,862	1,893	1,734	51.7	51.8	48.3	48.2
Coast counties-----	1,746	1,529	879	769	867	760	50.3	50.3	49.7	49.7
Interior counties-----	2,172	2,067	1,146	1,093	1,026	974	52.8	52.9	47.2	47.1
Central California-----	23,166	21,218	11,998	10,943	11,172	10,275	51.8	51.6	48.2	48.4
San Francisco-----	7,552	6,964	3,897	3,578	3,655	3,378	51.6	51.4	48.4	48.6
Other bay counties-----	5,736	5,053	2,976	2,554	2,760	2,504	51.9	50.5	48.1	49.5
Coast counties-----	2,565	2,455	1,376	1,251	1,290	1,204	53.2	51.0	46.8	49.0
Interior counties-----	7,292	6,751	3,744	3,562	3,548	3,189	51.3	52.8	48.7	47.2
Southern California-----	16,709	14,516	8,681	7,426	8,068	7,090	51.8	51.2	48.2	48.8
Los Angeles-----	11,967	10,408	6,224	5,351	5,743	5,067	52.0	51.4	48.0	48.6
Other counties-----	4,802	4,108	2,457	2,075	2,345	2,033	51.2	50.5	48.8	49.5
Northern and Central California-----	27,083	24,814	14,018	12,805	13,065	12,009	51.8	51.6	48.2	48.4
Coast counties-----	17,619	15,996	9,128	8,150	8,491	7,846	51.8	51.0	48.2	49.0
Interior counties-----	9,464	8,818	4,890	4,655	4,574	4,163	51.7	52.8	48.3	47.2
Metropolitan area-----	13,288	12,012	6,873	6,130	6,415	5,882	51.7	51.0	48.3	49.0
Rural counties-----	13,795	12,802	7,145	6,675	6,650	6,127	51.8	52.1	48.2	47.9

*For list of counties included in geographic divisions, see page 26.

The proportion of the sexes among the 43,852 children born in California in 1913 was: Male, 22,699, or 51.8 per cent; and female, 21,153, or 48.2 per cent. Among the 39,330 born in 1912, the proportion of the sexes was: Male, 20,231, or 51.4 per cent; and female, 19,099, or 48.6 per cent. It may be added that for 1909 to 1913 the annual average per cent male was 51.8, and the per cent female was 48.2.

In 1913 the male births exceeded the female by 1,546 or 7.3 per cent, while in 1912 the excess of boys over girls was only 1,132 or 5.9 per cent. The male births exceeded the female in every main and minor geographic division in both 1913 and 1912. The per cent male was highest in 1913 for the coast counties of Central California (53.2) and in 1912 for the interior counties of Northern California (52.9). Each year the per cent was lowest (50.3) for the coast counties of Northern California.

The per cents male were somewhat lower for the metropolitan area each year (51.7 and 51.0) than for the rural counties north of

Tehachapi (51.8 and 52.1), but were generally higher for San Francisco alone (51.6 and 51.4) than for the adjoining bay counties (51.9 and 50.5). Similarly, the per cents male for Los Angeles (52.0 and 51.4) were somewhat higher than for the other counties south of Tehachapi (51.2 and 50.5).

The following table shows, for 1913 and 1912, the classification of births by sex, with per cent distributions, for the freeholders' charter cities in contrast with the rest of the State. There were thirty-two chartered cities in 1913 and thirty-one in 1912:

TABLE 2.—Births Classified by Sex, with Per Cents, for Cities and Rest of State: 1913 and 1912.

Population Group	Births						Per cent male		Per cent female	
	Total		Male		Female					
	1913	1912	1913	1912	1912	1913	1913	1912	1913	1912
CALIFORNIA	43,862	39,330	22,699	20,231	21,153	19,099	51.8	51.4	48.2	48.6
Freeholders' charter cities	27,759	24,827	14,278	12,721	13,481	12,106	51.4	51.2	48.6	48.8
Rest of state	16,093	14,503	8,421	7,510	7,672	6,993	52.3	51.8	47.7	48.2

This table shows that among the 27,759 births in freeholders' charter cities in 1913 the proportion of the sexes was: Male, 14,278, or 51.4 per cent; and female, 13,481, or 48.6 per cent. The proportion of the sexes among the 24,827 births in chartered cities in 1912 was: Male, 12,721, or 51.2 per cent; and female, 12,106, or 48.8 per cent.

In California, outside chartered cities, there were 16,093 births, classified by sex, as follows: Male, 8,421, or 52.3 per cent; and female, 7,672, or 47.7 per cent. For the State outside cities in 1910 the 14,503 births were distributed by sex, as follows: Male, 7,510, or 51.8 per cent; and female, 6,993, or 48.2 per cent.

The per cents male were somewhat less each year for chartered cities as a class (51.4 and 51.2) than for all the rest of the State (52.3 and 51.8). However, the increase in the proportion of males for 1913, as compared with 1912, shown for California as a whole, appears also both within cities and outside them.

Race.—The following table gives the classification of births by race, as well as the per cent white, for the several geographic divisions in 1913 and 1912.

TABLE 3.—Births Classified by Race, with Per Cent White, for Geographic Divisions: 1913 and 1912.

Geographic division	Births						Per cent white
	Total	White	Negro	Indian	Chinese	Japanese	
1913.							
THE STATE -----	43,852	40,864	343	49	381	2,215	93.2
Northern California -----	3,918	3,725	4	26	17	146	95.1
Coast counties -----	1,746	1,701	-----	15	4	26	97.4
Interior counties -----	2,172	2,024	4	11	13	120	93.2
Central California -----	23,165	21,316	115	11	337	1,386	92.0
San Francisco -----	7,552	7,132	26	-----	180	214	94.4
Other bay counties -----	5,736	5,391	49	-----	69	227	94.0
Coast counties -----	2,585	2,266	3	-----	15	301	87.7
Interior counties -----	7,292	6,527	37	11	73	644	89.5
Southern California -----	16,769	15,823	224	12	27	683	94.4
Los Angeles -----	11,967	11,207	199	7	22	532	93.6
Other counties -----	4,802	4,616	25	5	5	151	96.1
Northern and Central California -----	27,083	25,041	119	37	354	1,532	92.5
Coast counties -----	17,619	16,490	78	15	268	768	96.6
Interior counties -----	9,464	8,551	41	22	86	764	90.4
Metropolitan area -----	13,288	12,523	75	-----	249	441	94.2
Rural counties -----	13,795	12,518	44	37	105	1,091	90.7
1912.							
THE STATE -----	39,330	37,194	319	29	321	1,467	94.6
Northern California -----	3,596	3,481	2	20	15	78	96.8
Coast counties -----	1,529	1,495	-----	11	1	22	97.8
Interior counties -----	2,067	1,986	2	9	14	56	96.1
Central California -----	21,218	19,878	111	3	280	946	93.7
San Francisco -----	6,954	6,609	20	-----	163	162	96.0
Other bay counties -----	5,068	4,773	54	-----	49	182	94.4
Coast counties -----	2,455	2,251	3	-----	15	196	91.7
Interior counties -----	6,751	6,245	34	3	53	416	92.5
Southern California -----	14,516	13,835	206	6	26	443	95.3
Los Angeles -----	10,496	9,852	183	1	17	355	94.7
Other counties -----	4,108	3,983	23	5	9	88	97.0
Northern and Central California -----	24,814	23,359	113	23	295	1,024	94.1
Coast counties -----	15,996	15,128	77	11	228	552	94.6
Interior counties -----	8,818	8,231	36	12	67	472	93.3
Metropolitan area -----	12,012	11,382	74	-----	212	344	94.8
Rural counties -----	12,802	11,977	39	23	83	680	93.6

It appears from this table that the race distribution of the 43,852 births in California in 1913 was: White, 40,864, or 93.2 per cent; Japanese, 2,215; Chinese, 381; negro, 343; and Indian, 49. In 1912 the race distribution of the 39,330 births was: White, 37,194, or 94.6 per cent; Japanese, 1,467; Chinese, 321; negro, 319; and Indian, 29. Each year the Japanese were decidedly the leading non-Caucasian race represented in births, with the Chinese and negroes next in order but far behind, and with Indians barely shown at all. It may be added that for 1909 to 1913 the annual average per cent white was 95.1. Moreover, the per cent white decreased steadily in the whole eight years covered

by the present registration law, the successive per cents being as follows: 98.4 (1906), 97.7, 96.8, 96.3, 96.1, 95.5, 94.6, and 93.2 (1913).

In 1913 and 1912 the per cent white was highest for Northern California (95.1 and 96.8), next for Southern California (94.4 and 95.3), and lowest for Central California (92.0 and 93.7). Among the minor geographic divisions the per cent white ranged from 97.4 and 97.8 for the coast counties of Northern California in 1913 and 1912, respectively, to merely 87.7 and 91.7 for the coast counties of Central California.

Each year the per cents white were less for Los Angeles (93.6 and 94.7) than for the other counties of Southern California (96.1 and 97.0). However, the per cents white were somewhat greater for San Francisco than for the other bay counties, being 94.4 and 95.0 for the metropolis proper against 94.0 and 94.4 for the suburbs.

The following table gives the race distribution of births, with the per cent white, for the thirty-two chartered cities in 1913 and the thirty-one in 1912, in contrast with the rest of the State:

TABLE 4.—Births Classified by Race, with Per Cent White, for Cities and Rest of State: 1913 and 1912.

Population group	Births						Per cent white
	Total	White	Negro	Indian	Chinese	Japanese	
1913.							
CALIFORNIA.....	43,862	40,864	343	49	381	2,215	93.2
Freeholders' charter cities...	27,759	26,076	308	8	314	1,058	93.9
Rest of state.....	16,093	14,788	40	41	67	1,157	91.9
1912.							
CALIFORNIA.....	39,330	37,194	319	29	321	1,487	94.6
Freeholders' charter cities...	24,827	23,494	276	3	261	793	94.6
Rest of state.....	14,503	13,700	43	26	60	674	94.5

This table shows that among the 27,759 births in chartered cities in 1913, the race distribution was: White, 26,076, or 93.9 per cent; Japanese, 1,058; Chinese, 314; negro, 303; and Indian, 8. The race distribution of the 24,827 births in cities in 1912 was: White, 23,494, or 94.6 per cent; Japanese, 793; negro, 276; Chinese, 261; and Indian, 3.

For the State, exclusive of chartered cities, there were 16,093 births in 1913, distributed by race, as follows: White, 14,788, or 91.9 per cent; Japanese, 1,157; Chinese, 67; Indian, 41; and negro, 40. There were 14,503 births outside cities in 1912, distributed by race, as follows: White, 13,700, or 94.5 per cent; Japanese, 674; Chinese, 60; negro, 43; and Indian, 26.

In both 1913 and 1912 the per cent white was somewhat greater for births within cities (93.9 and 94.6) than for births outside them (91.9 and 94.5). The general decrease in the per cent white, for 1913 as compared with 1912, was common to both chartered cities and rural districts.

Sex and Race—In the table below births of whites and non-Caucasians are classified by sex, with per cents, for both 1913 and 1912. There were so few births of non-Caucasians in some geographic divisions that figures are presented here only for the thirty-two chartered cities in 1913 and the thirty-one in 1912, as contrasted with the rest of the State.

TABLE 5.—Births Classified by Sex and Race, with Per Cents, by Sex, for Cities and Rest of State: 1913 and 1912.

Population group.	Births						Per cent male		Per cent female	
	Total		Male		Female		1913	1912	1913	1912
	1913	1912	1913	1912	1913	1912				
White.										
CALIFORNIA	40,864	37,194	21,057	19,098	19,807	18,101	51.5	51.3	48.5	48.7
Freeholders' charter cities	26,076	23,494	13,377	12,080	12,699	11,464	51.3	51.2	48.7	48.8
Rest of state.....	14,788	13,700	7,680	7,063	7,108	6,637	51.9	51.6	48.1	48.4
Non-Caucasian.										
CALIFORNIA	2,988	2,136	1,642	1,138	1,346	998	55.0	53.3	45.0	46.7
Freeholders' charter cities	1,683	1,338	901	691	782	642	53.5	51.8	46.5	48.2
Rest of state.....	1,305	803	741	447	564	356	56.8	55.7	43.2	44.3

This table shows, in brief, that the preponderance of males was much greater, both within cities and outside them, among the few non-Caucasian births than among the many white births. Thus, in 1913 and 1912, respectively, the per cents male were 55.0 and 53.3 for non-Caucasians against only 51.5 and 51.3 for whites in the State as a whole; 53.5 and 51.8 for non-Caucasians against 51.3 and 51.2 for whites in chartered cities as a class; and no less than 56.8 and 55.7 for non-Caucasians against only 51.9 and 51.6 for whites in all the rest of California.

Nativity of White Mothers.—The analysis of births by race may be extended to a consideration of births according to the nativity of white mothers—classified as born in California, born in other states, or foreign born—as given in the following table, by numbers and per cents, for the several geographic divisions in both 1913 and 1912:

TABLE 6.—White Mothers Classified by Nativity, with Per Cents, for Geographic Divisions: 1913 and 1912.

Geographic division	White mothers				Per cent		
	Total	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
1913.							
THE STATE	40,864	12,864	16,305	11,695	31.5	39.9	28.6
<i>Northern California</i>	3,725	1,879	1,066	780	50.5	28.6	20.9
Coast counties	1,701	857	389	455	50.4	22.9	26.7
Interior counties	2,024	1,022	677	325	50.5	33.4	16.1
<i>Central California</i>	21,816	8,371	6,037	6,908	39.3	28.3	32.4
San Francisco	7,132	2,836	1,314	2,982	39.8	18.4	41.8
Other bay counties	5,391	2,216	1,480	1,695	41.1	27.5	31.4
Coast counties	2,263	999	584	683	44.1	25.8	30.1
Interior counties	6,527	2,320	2,659	1,548	35.6	40.7	23.7
<i>Southern California</i>	15,823	2,614	9,202	4,007	16.5	58.2	25.3
Los Angeles	11,207	1,687	6,473	3,047	15.0	57.8	27.2
Other counties	4,616	927	2,729	960	20.1	59.1	20.8
<i>Northern and Central California</i>	25,041	10,250	7,103	7,688	40.9	28.4	30.7
Coast counties	16,490	6,906	3,767	5,815	41.9	22.8	35.3
Interior counties	8,551	3,342	3,336	1,873	39.1	39.0	21.9
<i>Metropolitan area</i>	12,523	5,052	2,794	4,677	40.3	22.3	37.4
Rural counties	12,518	5,198	4,309	3,011	41.5	34.4	24.1
1912.							
THE STATE	37,194	11,864	14,613	10,717	31.9	39.3	28.8
<i>Northern California</i>	3,481	1,704	1,050	727	48.9	30.2	20.9
Coast counties	1,495	691	371	433	46.2	24.8	29.0
Interior counties	1,986	1,013	679	294	51.0	34.2	14.8
<i>Central California</i>	19,878	7,777	5,628	6,473	39.1	28.3	32.6
San Francisco	6,009	2,601	1,166	2,842	39.4	17.6	43.0
Other bay counties	4,773	1,940	1,330	1,503	40.6	27.9	31.5
Coast counties	2,251	987	600	664	43.8	26.7	29.5
Interior counties	6,245	2,240	2,532	1,494	36.0	40.6	23.4
<i>Southern California</i>	13,835	2,383	7,935	3,517	17.2	57.4	25.4
Los Angeles	9,852	1,496	5,693	2,663	15.2	57.8	27.0
Other counties	3,983	887	2,242	854	22.3	56.3	21.4
<i>Northern and Central California</i>	23,350	9,481	6,678	7,200	40.6	28.6	30.8
Coast counties	15,128	6,219	3,467	5,442	41.1	22.9	36.0
Interior counties	8,231	3,262	3,211	1,758	39.6	39.0	21.4
<i>Metropolitan area</i>	11,382	4,541	2,496	4,345	39.9	21.9	38.2
Rural counties	11,977	4,940	4,182	2,855	41.3	34.0	23.8

It appears from this table that of the mothers of the white children born in this State totaling 40,864 and 37,194 in 1913 and 1912, respectively, those who were themselves born in other states numbered 16,305 and 14,613; those who were Californians like their children were 12,864 and 11,864; and the foreign born mothers were 11,695 and 10,717. The per cent distribution of white mothers was as follows for 1913 and 1912, respectively: Other states, 39.9 and 39.3; California, 31.5 and 31.9; and foreign countries, 28.6 and 28.8. It may be added that for 1909 to 1913 the annual average per cents were as follows: Other American, 38.0; Californian, 33.4; and foreign, 28.6.

The proportion of white mothers born in other states is very high for Southern California, but is quite low for Northern and Central California. The per cents born elsewhere in the United States were 58.2 and 57.4 for the counties south of Tehachapi in 1913 and 1912 as compared with 28.4 and 28.6 for those to the north, being 28.6 and 30.2 for Northern California and only 28.3 each year for Central California. The per cent was 57.8 each year for Los Angeles against 59.1 in 1913 and 56.3 in 1912 for the other counties south of Tehachapi. However, the per cents were only 22.3 and 21.9 for the metropolitan area as compared with 34.4 and 34.9 for the rural counties north of Tehachapi, and were merely 18.4 and 17.6 for San Francisco against 27.5 and 27.9 for the other bay counties.

The proportion of mothers who were themselves native daughters is very high for both Northern and Central California but very low for Southern California. The per cents of mothers born in the Golden State in 1913 and 1912, respectively, were 50.5 and 48.9 for Northern California and 39.3 and 39.1 for Central California, or 40.9 and 40.6 for both together as compared with merely 16.5 and 17.2 for the counties south of Tehachapi. The per cents were as little as 15.0 and 15.2 for Los Angeles against 20.1 and 22.3 for the other counties of Southern California. The per cents were likewise less for the metropolitan area than for the rural counties north of Tehachapi, being 40.3 and 39.9 for the former against 41.5 and 41.3 for the latter. The per cents were also somewhat less for San Francisco than for the other bay counties, being 39.8 and 39.4 for main city against 41.1 and 40.6 for the surrounding suburbs.

The proportion of foreign born mothers of the white race is notably high only for Central California, especially in San Francisco and the other bay counties. The per cents born abroad in 1913 and 1912, respectively, were 32.4 and 32.6 for Central California as compared with merely 25.3 and 25.4 for Southern California and 20.9 each year for Northern California. The per cents for the counties north of Tehachapi were 30.7 and 30.8, being no less than 37.4 and 38.2 for the metropolitan area against only 24.1 and 23.8 for the rural counties. The per cents born abroad were as great as 41.8 and 43.0 among mothers in the metropolis proper as compared with 31.4 and 31.5 for those in the suburban counties.

The next table gives numbers and per cents, showing the nativity of white mothers for the thirty-two chartered cities in 1913 and the thirty-one in 1912, as compared with all the rest of California:

TABLE 7.—White Mothers Classified by Nativity, with Per Cents, for Cities and Rest of State: 1913 and 1912.

Population group	White mothers				Per cent		
	Total	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
1913.							
CALIFORNIA	40,864	12,864	16,806	11,065	31.5	39.9	28.6
Freeholders' charter cities...	26,076	7,846	10,048	8,182	30.1	38.5	31.4
Rest of state.....	14,788	5,018	6,257	3,513	33.9	42.3	23.8
1912.							
CALIFORNIA	37,194	11,864	14,613	10,717	31.9	39.3	28.8
Freeholders' charter cities...	23,494	7,118	8,878	7,498	30.3	37.8	31.9
Rest of state.....	13,700	4,746	5,735	3,219	34.6	41.9	23.5

This table shows that of the 26,076 mothers of white children born in freeholders' charter cities in 1913 altogether 10,048, or 38.5 per cent, were natives of other states; 8,182, or 31.4 per cent, were foreign born; and 7,846, or 30.1 per cent, were natives of California. Of the 23,494 white mothers bearing children in chartered cities in 1912, those born in other states were 8,878, or 37.8 per cent; those born abroad were 7,498, or 31.9 per cent; and those born in California were 7,118, or 30.3 per cent.

In the State outside cities there were 14,788 births of white children in 1913, with mothers born as follows: Other states, 6,257, or 42.3 per cent; California, 5,018, or 33.9 per cent; and foreign countries, 3,513, or 23.8 per cent. In 1912 there were 13,700 white children born in the rural part of the State, with maternal nativity as follows: Other states, 5,735, or 41.9 per cent; California, 4,746, or 34.6 per cent; and foreign, 3,219, or 23.5 per cent.

The per cents American born, whether in California or other states, were less each year for chartered cities than for rural districts, while the per cent foreign born was much greater within cities than outside them. The excess in the per cent of mothers born in this State for rural districts over that for cities was 3.8 in 1912 (33.9 against 30.1), and 4.3 in 1912 (34.6 against 30.3). Similarly, the excess in the per cent born elsewhere in the United States for the rural over the urban districts was 3.8 in 1913 (42.3 against 38.5), and 4.1 in 1912 (41.9 against 37.8). On the other hand, the excess in the per cent foreign born among white mothers in cities over that among mothers in the country districts was no less than 7.6 in 1913 (31.4 against 23.8), and 8.4 in 1912 (31.9 against 23.5).

Both within cities and outside them the women bearing most children in California are those who were themselves born in other states. Foreign born mothers are second for births in chartered cities, but a poor third for births outside cities. California born mothers are a good second for births in the rural districts, and even a close third for births in urban territory.

Sex and Nativity of White Mothers.—In the study of *sex ante*, it was found that the preponderance of male births was greater among non-Caucasians than among whites. The following table has been prepared to show the proportion of the sexes of children born to white mothers classified by nativity. Only the per cent distribution, by sex, is given here, but the absolute figures are presented in Table 18, *post*.

TABLE 8.—Per Cent Distribution, by Sex, of White Children with Mothers Classified by Nativity, for Geographic Divisions: 1913 and 1912.

Geographic division	White children										
	Per cent male among those with mothers—						Per cent female among those mothers—				
	Born in California		Born in other states		Foreign born		Born in California		Born in other states		F
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913
THE STATE	51.9	51.0	51.3	51.9	51.4	50.9	48.1	49.0	48.7	48.1	48.6
<i>Northern California</i>	52.8	52.5	49.5	51.2	52.4	49.1	47.2	47.5	50.5	48.8	47.6
Coast counties	52.0	53.0	47.8	49.9	50.1	45.5	48.0	47.0	52.2	50.1	49.9
Interior counties	53.4	52.1	50.5	52.0	55.7	54.4	46.6	47.9	49.5	48.0	44.3
<i>Central California</i>	51.6	50.9	50.7	52.0	51.8	51.3	48.4	49.1	49.3	48.0	48.2
San Francisco	51.7	49.2	51.1	52.9	51.8	52.6	48.3	50.8	48.9	47.1	48.2
Other bay counties	52.3	52.4	50.5	50.1	52.3	49.0	47.7	47.6	49.5	49.9	47.7
Coast counties	52.0	50.8	50.7	50.3	51.7	48.6	48.0	49.2	49.3	49.7	48.3
Interior counties	50.5	51.8	50.7	52.9	51.4	52.5	49.5	48.2	49.3	47.1	48.6
<i>Southern California</i>	52.3	50.4	51.9	51.9	50.6	50.6	47.7	49.6	48.1	48.1	49.4
Los Angeles	52.6	50.0	52.2	52.4	50.8	50.4	47.4	50.0	47.8	47.6	49.2
Other counties	51.6	51.1	51.2	50.6	50.0	51.2	48.4	48.9	48.8	49.4	50.0
<i>Northern and Central California</i>	51.8	51.2	50.5	51.8	51.9	51.1	48.2	48.8	49.5	48.2	48.1
Coast counties	52.0	50.8	50.5	51.1	51.8	50.6	48.0	49.2	49.5	48.9	48.2
Interior counties	51.4	51.9	50.6	52.7	52.1	52.8	48.6	48.1	49.4	47.3	47.9
Metropolitan area	52.0	50.5	50.8	51.4	52.0	51.3	48.0	49.5	49.2	48.6	48.0
Rural counties	51.6	51.8	50.4	52.1	51.7	50.7	48.4	48.2	49.6	47.9	48.3

The per cents of male births in California in 1913 and 1912, respectively, were 51.9 and 51.0 for native daughters, 51.3 and 51.9 for mothers born in other states, and 51.4 and 50.9 for foreign born mother. For 1909 to 1913 the annual average per cents were as follows: Californians, 51.6; other Americans, 51.7; and foreign born, also 51.7. The per cents for native daughters and foreign born mothers were substantially the same each year, while the per cent for other Americans was lower than both for 1913 though somewhat higher than both for 1912.

Differences like those here noted between the per cents for the State in 1913 and 1912 occur also among the per cents for the several geographic divisions each year, so that it is impossible to draw general conclusions from these figures about the effect of maternal nativity on the preponderance of male births.

The following table presents similar figures for freeholders' charter cities in contrast with the rest of California. The numbers on which the per cents are based appear in Table 19, *post*.

TABLE 9. Per Cent Distribution, by Sex, of White Children with Mothers Classified by Nativity, for Cities and Rest of State: 1913 and 1912.

Population group	White children											
	Per cent male among those with mothers—						Per cent female among those with mothers—					
	Born in California		Born in other states		Foreign born		Born in California		Born in other states		Foreign born	
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
CALIFORNIA.....	51.9	51.0	51.3	51.9	51.4	50.9	48.1	49.0	48.7	48.1	48.6	49.1
Freeholders' charter cities	51.6	50.4	51.3	51.9	51.0	51.1	48.4	49.6	48.7	48.1	49.0	48.9
Rest of state.....	52.3	52.0	51.3	51.8	52.6	50.5	47.7	48.0	48.7	48.2	47.4	49.5

In chartered cities the per cents of male births in 1913 and 1912, respectively, were 51.6 and 50.4 for Californian mothers and 51.3 and 51.9 for other Americans, as compared with 51.0 and 51.1 for mothers born abroad. For 1909 to 1913, the annual average per cents male were as follows, according to maternal nativity: California, 51.7; other states, also 51.7; and foreign countries, 51.5. That is, in cities where the three elements of the population are about equally represented, the preponderance of male births is somewhat greater, generally speaking, for Californian and other American mothers than for those born in foreign countries though, after all, not so very far from the same for each of the three classes.

In rural districts, where the foreign born element is least numerous, the per cents male in 1913 and 1912 were 52.3 and 52.0 among children of native daughters and 51.3 and 51.8 among children of other Americans, as compared with 52.6 and 50.5 among children of foreign born mothers. For 1909 to 1913 the annual average per cents male for mothers classified by nativity, were as follows: Californian, 51.7; other Americans, 51.6; and foreign, 52.3. The Californian and other American mothers outnumber by far the foreign born in rural districts, while the preponderance of male births is generally greater in country sections for mothers born abroad than for natives of California or other states.

NATIVITY OF BRIDES AND MOTHERS.

Nativity of White Brides and Mothers.—Some facts of interest are disclosed by a comparison of the nativity of white brides and mothers in California. Accordingly, the following table is presented giving, for the several geographic divisions in 1913 and 1912, the per cent distribution of white brides and white mothers by nativity:

TABLE 10.—Per Cent Distribution, by Nativity, of White Brides and White Mothers, for Geographic Divisions: 1913 and 1912.

Geographic division	Per cent born in California		Per cent born in other states		Per cent foreign born	
	White brides	White mothers	White brides	White mothers	White brides	White mothers
1913.						
THE STATE-----	35.9	31.5	44.1	39.9	20.0	28.6
Northern California-----	57.1	50.5	28.5	28.6	14.4	20.9
Coast counties-----	58.1	50.4	21.7	22.9	20.2	26.7
Interior counties-----	56.1	50.5	35.2	33.4	8.7	16.1
Central California-----	45.3	39.3	31.9	28.3	22.8	32.4
San Francisco-----	42.4	39.8	26.0	18.4	31.6	41.5
Other bay counties-----	47.9	41.1	31.9	27.5	20.2	31.4
Coast counties-----	50.9	44.1	30.8	25.8	18.3	30.1
Interior counties-----	44.1	35.6	38.9	40.7	17.0	23.7
Southern California-----	19.0	16.5	63.7	58.2	17.3	25.2
Los Angeles-----	16.9	15.0	64.6	57.8	18.5	27.2
Other counties-----	22.6	20.1	62.1	59.1	15.3	20.8
Northern and Central California-----	46.8	40.9	31.5	28.4	21.7	30.7
Coast counties-----	46.9	41.9	28.4	22.8	24.7	35.3
Interior counties-----	46.4	39.1	38.2	39.0	15.4	21.9
Metropolitan area-----	45.0	40.3	28.7	22.3	26.3	37.4
Rural counties-----	48.8	41.5	34.6	34.4	16.6	24.1
1912.						
THE STATE-----	37.6	31.9	42.6	39.3	19.8	28.5
Northern California-----	57.5	48.9	29.4	30.2	13.1	20.9
Coast counties-----	56.3	46.2	24.9	24.8	18.8	29.0
Interior counties-----	58.6	51.0	34.1	34.2	7.3	14.8
Central California-----	47.3	39.1	29.8	28.3	22.9	32.6
San Francisco-----	43.7	39.4	24.1	17.6	32.2	43.0
Other bay counties-----	50.2	40.6	29.4	27.9	20.4	31.5
Coast counties-----	54.5	43.8	26.7	26.7	18.8	29.5
Interior counties-----	45.8	36.0	37.8	40.6	16.4	23.4
Southern California-----	19.6	17.2	63.5	57.4	16.9	25.4
Los Angeles-----	17.7	15.2	63.8	57.8	18.5	27.0
Other counties-----	23.1	22.3	63.0	56.3	13.9	21.4
Northern and Central California-----	48.5	40.6	29.8	28.6	21.7	30.8
Coast counties-----	48.6	41.1	26.5	22.9	24.9	36.0
Interior counties-----	48.3	39.6	37.1	39.0	14.6	21.4
Metropolitan area-----	46.8	39.9	26.6	21.9	26.6	38.2
Rural counties-----	50.6	41.3	33.4	34.9	16.0	23.5

It appears from this table that the per cents of white brides born in California in 1913 and 1912 were 35.9 and 37.6 but that the per cents of native daughters among white mothers were only 31.5 and 31.9, respectively. The excess in the per cent born in California among brides over that among mothers was 4.4 in 1913 (35.9 against 31.5) and 5.7 in 1912 (37.6 against 31.9). In every main and minor geographic division in both 1913 and 1912 a larger per cent of white brides than of white mothers were natives of this State.

The per cents of white brides born in other states were 44.1 and 42.6 in 1913 and 1912, while the per cents born elsewhere in the United

States were considerably less among white mothers, 39.9 and 39.3, respectively. The excess in the per cent born in other states for brides over that for mothers was 4.2 in 1913 (44.1 against 39.9) and 3.3 in 1912 (42.6 against 39.3). For the interior counties of Central California in both 1913 and 1912, and for the coast counties of Northern California in 1913 alone and the interior counties of Northern California in 1912 alone, the per cents born elsewhere in the United States were greater among white mothers than among white brides. For the remaining geographic divisions, however, a larger per cent of the white brides than of the white mothers in California were born in other states.

The per cents foreign born were only 20.0 and 19.8 among white brides against no less than 28.6 and 28.8 in 1913 and 1912 among white mothers. The per cent born abroad among mothers exceeded that among brides by 8.6 in 1913 (28.6 against 20.0) and by 9.0 in 1912 (28.8 against 19.8). In every geographic division each year a much larger per cent of the white mothers than of the white brides were foreign born.

Comparison of the annual average per cents for the State as a whole in 1909 to 1913 shows that among native daughters the excess in the per cent for brides over that for mothers was 5.0 (38.4 against 33.4); among other Americans the excess in the per cent for brides over that for mothers was 4.1 (42.1 against 38.0); and among the foreign born the converse excess in the per cent for mothers over that for brides was as great as 9.1 (28.6 against 19.5).

The following table shows, for the several geographic divisions in 1913 and 1912, the results of comparing the per cent distribution, by nativity, of white brides and mothers:

TABLE 11.—Comparison of Per Cent Distribution, by Nativity, of White Brides and White Mothers, for Geographic Divisions: 1913 and 1912.

Geographic division	Excess in per cent born in California for white brides over that for white mothers		Excess in per cent born in other states for white brides over that for white mothers		Excess in per cent foreign born for white mothers over that for white brides	
	1912	1913	1913	1912	1913	1912
THE STATE.....	4.4	5.7	4.2	3.3	8.6	9.0
Northern California.....	6.6	8.6	-0.1	-0.8	6.5	7.8
Coast counties.....	7.7	10.1	-1.2	0.1	6.5	10.2
Interior counties.....	5.6	7.6	1.8	-0.1	7.4	7.5
Central California.....	6.0	8.2	3.6	1.5	9.6	9.7
San Francisco.....	2.6	4.3	7.6	6.5	10.2	10.8
Other bay counties.....	6.8	9.6	4.4	1.5	11.2	11.1
Coast counties.....	6.8	10.7	5.0	.....	11.8	10.7
Interior counties.....	8.5	9.8	-1.8	-2.8	6.7	7.0
Southern California.....	2.5	2.4	5.5	6.1	8.0	8.5
Los Angeles.....	1.9	2.5	6.8	6.0	8.7	8.5
Other counties.....	2.5	0.8	3.0	6.7	5.5	7.5
Northern and Central California...	5.9	7.9	3.1	1.2	9.0	9.1
Coast counties.....	5.0	7.5	5.6	3.6	10.6	11.1
Interior counties.....	7.3	8.7	-0.8	-1.9	6.5	6.8
Metropolitan area.....	4.7	6.9	6.4	4.7	11.1	11.6
Rural counties.....	7.3	9.3	0.2	-1.5	7.5	7.8

The per cents born in California were considerably greater each year among brides than among mothers, and the per cents born in other states were likewise greater, though in less degree, among brides than among mothers. On the other hand, the per cents foreign born were much greater each year for white mothers than for white brides.

The excess in the per cent born in California for brides over that for mothers was much greater for the counties north of Tehachapi, 5.9 in 1913 and 7.9 in 1912, than for those to the south, 2.5 and 2.4 respectively. However, the proportion of native daughters among both brides and mothers is much greater anyway in Northern and Central California than in Southern California. The excess in the per cents for brides over those for mothers was somewhat less for the metropolitan area (4.7 in 1913 and 6.9 in 1912) than for the rural counties north of Tehachapi (7.3 and 9.3, respectively). The excess was likewise less for the metropolis proper (2.6 and 4.3) than for the suburban counties (6.8 and 9.6).

The excess in the per cent born in other states for brides over that for mothers was considerably greater for the counties south of Tehachapi (5.5 in 1913 and 6.1 in 1912) than for those to the north (3.1 and 1.2, respectively). It must be remembered, however, that the proportion of both brides and mothers born in other states is particularly great for Southern California, but relatively small for Northern as well as Central California. In the metropolitan area a much larger proportion of the brides than of the mothers were born elsewhere in the United States, the excess in the per cent for brides being 6.4 for 1913 and 4.7 in 1912; in the rural counties north of Tehachapi, however, the excess in the per cent for brides was only 0.2 for 1913, while for 1912 there was even an excess in the per cent for mothers of 1.5. The excess in the per cent born in other states among brides over that among mothers was considerably greater for San Francisco (7.6 and 6.5) than for the other bay counties (4.4 and 1.5).

The marked excess in the per cent foreign born among mothers over that among brides was greatest in Central California (9.6 in 1913 and 9.7 in 1912); next in Southern California (8.0 and 8.5); and least in Central California (6.5 and 7.8). It is in these geographic divisions that the proportions foreign born among both mothers and brides are likewise greatest in the same order as here stated for the excess of foreign mothers over foreign brides. For Northern and Central California together the excess in the per cent of foreign born mothers over that of foreign born brides was 9.0 in 1913 and 9.1 in 1912. In the metropolitan area, where the foreign born element mainly abounds, the excess in the per cent of foreign born mothers over that of foreign born brides was as great as 11.1 in 1913 and 11.6 in 1912 as compared with only 7.5 and 7.8, respectively, for the rural counties north of Tehachapi. However, while San Francisco has a much larger proportion of foreign born inhabitants than the other bay counties, yet the excess in the per cent of foreign born mothers over that of foreign brides was somewhat less for the metropolis proper (10.2 and 10.8) than for the suburban counties (11.2 and 11.1).

Nativity of Single White Brides and White Mothers.—Since the marriages in which the brides were single are more apt to be blessed with children than those in which the brides were widowed or divorced, it

may be even more instructive to compare the nativity of white mothers, not merely with that of all white brides, but rather with the nativity of the single white brides alone. The following table has, therefore, been prepared to show, for the several geographic divisions in 1913 and 1912, the per cent distribution, by nativity, of single white brides and white mothers:

TABLE 12.—Per Cent Distribution, by Nativity, of Single White Brides and White Mothers, for Geographic Divisions: 1913 and 1912.

Geographic division	Per cent born in California		Per cent born in other states		Per cent foreign born	
	Single white brides	White mothers	Single white brides	White mothers	Single white brides	White mothers
1913.						
THE STATE.....	38.6	31.5	41.3	39.9	20.1	28.6
Northern California.....	62.8	50.5	23.9	28.6	13.3	20.9
Coast counties.....	63.1	50.4	17.8	22.9	19.1	26.7
Interior counties.....	62.6	50.5	29.9	33.4	7.5	16.1
Central California.....	48.0	39.3	29.0	28.3	23.0	32.4
San Francisco.....	44.3	39.8	23.0	18.4	32.7	41.8
Other bay counties.....	51.7	41.1	29.1	27.5	19.2	31.4
Coast counties.....	54.7	44.1	27.3	25.8	18.0	30.1
Interior counties.....	46.2	35.6	36.2	40.7	17.6	23.7
Southern California.....	20.9	16.5	61.8	58.2	17.3	25.3
Los Angeles.....	18.5	15.0	63.0	57.8	18.5	27.2
Other counties.....	25.0	20.1	59.8	59.1	15.2	20.8
Northern and Central California.....	49.8	40.9	28.3	28.4	21.9	30.7
Coast counties.....	50.0	41.9	25.3	22.8	24.7	35.3
Interior counties.....	49.4	39.1	35.0	39.0	15.6	21.9
Metropolitan area.....	47.7	40.3	25.8	22.3	26.5	37.4
Rural counties.....	52.2	41.5	31.2	34.4	16.6	24.1
1912.						
THE STATE.....	40.2	31.9	39.8	39.3	20.0	28.8
Northern California.....	61.2	48.9	25.7	30.2	13.1	20.9
Coast counties.....	59.9	46.2	20.7	24.8	19.4	29.0
Interior counties.....	62.6	51.0	30.8	34.2	6.6	14.8
Central California.....	49.7	39.1	27.2	28.3	23.1	32.6
San Francisco.....	45.2	39.4	21.4	17.6	33.4	43.0
Other bay counties.....	53.4	40.6	27.0	27.9	19.6	31.5
Coast counties.....	58.1	43.8	23.6	26.7	18.3	29.5
Interior counties.....	48.2	36.0	35.2	40.6	16.6	23.4
Southern California.....	21.8	17.2	61.3	57.4	16.9	25.4
Los Angeles.....	19.4	15.2	62.2	57.8	18.4	27.0
Other counties.....	26.2	22.3	59.8	56.3	14.0	21.4
Northern and Central California.....	51.1	40.6	27.0	28.6	21.9	30.8
Coast counties.....	51.2	41.1	23.6	22.9	25.2	36.0
Interior counties.....	51.1	39.6	34.3	39.0	14.6	21.4
Metropolitan area.....	48.9	39.9	24.0	21.9	27.1	38.2
Rural counties.....	53.6	41.3	30.4	34.9	16.0	23.8

When the contrast is drawn between the nativity of single white brides and of white mothers, the excess heretofore noted in the per cents foreign born among mothers over brides is found also in the per cents for mothers over the single brides alone. However, while the per cents born in other states were considerably greater for all brides than for mothers in both 1913 and 1912, the per cents born elsewhere in the United States were notably greater for single white brides than for white mothers only in 1913, being also greater but only slightly so for single white brides than for white mothers in 1912. On the other hand, the excess in the per cent born in California among brides as compared with mothers remains very great when the widowed and divorced brides are eliminated and only the single brides are considered.

The table shows that the per cent of single white brides born in California was no less than 38.6 in 1913 and 40.2 in 1912, while the corresponding per cents for white mothers were only 31.5 and 31.9, respectively. The excess in the per cent of native daughters among single white brides over that among mothers was 7.1 in 1913 (38.6 as compared with 31.5) and was 8.3 in 1912 (40.2 as compared with 31.9). In all parts of the State both years a considerably larger proportion of the single white brides than of the mothers were born in California.

The per cent of single white brides born in other states was 41.3 in 1913 as compared with 39.9 for white mothers, an excess of 1.4 in the per cent for brides. In 1912, however, the per cent born elsewhere in the United States was only 39.8 for single white brides, against 39.3 for white mothers, an excess of only 0.5 in the per cent for brides. The excess in the per cent of single white brides born in other states over that for white mothers observed for 1913 was confined, moreover, to the metropolitan area and the adjacent coast counties as well as to Southern California as a whole, while in 1912 there was a similar excess in the per cent of single brides over that for mothers merely for San Francisco besides Southern California. In several of the geographic divisions, therefore, especially for 1912, the per cents born elsewhere in the United States were somewhat greater among mothers than among single brides.

The per cents foreign born in 1913 and 1912 were only 20.1 and 20.0 among single white brides in contrast with no less than 28.6 and 28.8 among white mothers. The per cent born abroad for mothers surpassed that for single brides by 8.5 in 1913 (28.6 against 20.1) and by 8.8 in 1912 (28.8 against 20.0). In every geographic division each year the per cent foreign born was decidedly higher for white mothers than for single white brides.

Comparison of the annual average per cents for California in 1909 to 1913 shows that among native daughters the excess in the per cent for single brides over that for mothers was as great as 7.8 (41.2 against 33.8); among other Americans the excess in the per cent for single brides over that of mothers was merely 1.3 (39.3 against 38.0); and among the foreign born the converse excess in the per cent for mothers over that for single brides was no less than 9.1 (28.6 against 19.5).

The following table gives a measure of the contrast between the per cent distribution, by nativity, of single white brides and white mothers for the several geographic divisions in 1913 and 1912:

TABLE 13.—Comparison of Per Cent Distribution, by Nativity, of Single White Brides and White Mothers, for Geographic Divisions: 1913 and 1912.

Geographic division	Excess in per cent born in California for single white brides over that for white mothers		Excess in per cent born in other states for single white brides over that for white mothers		Excess in per cent foreign born for white mothers over that for single white brides	
	1913	1912	1913	1912	1913	1912
THE STATE-----	7.1	8.3	1.4	0.5	8.5	8.8
Northern California-----	12.3	12.3	-4.7	-4.5	7.6	7.6
Coast counties-----	12.7	13.7	-5.1	-4.1	7.6	9.6
Interior counties-----	12.1	11.6	-3.5	-3.4	8.6	8.2
Central California-----	8.7	10.6	0.7	-1.1	9.4	9.5
San Francisco-----	4.5	5.8	4.6	3.8	9.1	9.6
Other bay counties-----	10.6	12.8	1.6	-0.9	12.2	11.9
Coast counties-----	10.6	14.3	1.5	-3.1	12.1	11.2
Interior counties-----	10.6	12.2	-4.5	-5.4	6.1	6.8
Southern California-----	4.4	4.6	3.6	3.9	8.0	8.5
Los Angeles-----	3.5	4.2	5.2	4.4	8.7	8.6
Other counties-----	4.9	3.9	0.7	3.5	5.6	7.4
Northern and Central California-----	8.9	10.5	-0.1	-1.6	8.8	8.9
Coast counties-----	8.1	10.1	2.5	0.7	10.6	10.8
Interior counties-----	10.3	11.5	-4.0	-4.7	6.3	6.8
Metropolitan area-----	7.4	9.0	3.5	2.1	10.9	11.1
Rural counties-----	10.7	12.3	-3.2	-4.5	7.5	7.8

The single white brides surpassed the white mothers in the per cents born in California and in other states, though in much greater degree for California than for other Americans, while the mothers surpassed greatly the single brides in the per cent foreign born each year. Generally speaking, there was a marked excess in the per cent born in California among single brides over that among mothers; relatively little difference in the per cents born elsewhere in the United States for single brides and mothers; and a very great excess in the per cent born abroad among mothers over that for single brides.

The excess in the per cent born in California among single brides over that among mothers was much greater for Northern and Central California, 8.9 in 1913 and 10.5 in 1912, than for Southern California, 4.4 and 4.6, respectively. In all cases, however, the proportions born in the Golden State are much greater for the counties north of Tehachapi than for those to the south. The excess in the per cents born in California for single brides over those for mothers was somewhat less for the metropolitan area (7.4 in 1913 and 9.0 in 1912), than for the rural counties north of Tehachapi (10.7 and 12.3), and was likewise less for

San Francisco (4.5 and 5.8) than for the other bay counties (10.6 and 12.8).

The relatively small excess in the per cent born in other states among single brides over that among mothers shown each year was limited to San Francisco besides Southern California as a whole for both 1913 and 1912, though appearing also for the other bay counties and the coast counties of Central California in 1913 alone. The excess in the per cent born elsewhere in the United States among single brides over that among mothers was thus practically confined to the metropolitan area north of Tehachapi (3.5 and 2.1), especially San Francisco alone (4.6 and 3.8), as well as Southern California as a whole (3.6 and 3.9), particularly Los Angeles alone (5.2 and 4.4). For the rural counties of Northern and Central California, on the other hand, there was a great excess in the per cents born elsewhere in the United States among mothers over the per cents among single brides (3.2 and 4.5), especially for Northern California alone (4.7 and 4.5).

The decided excess in the per cent foreign born among mothers over that among single brides was greatest in Central California (9.4 and 9.5); next in Southern California (8.0 and 8.5); and least in Northern California (7.6 and 7.8). It is in Central, Southern, and Northern California, in the order stated for the excess of mothers, that the per cents foreign born are likewise greatest among both mothers and brides. For Northern and Central California the per cent born abroad among mothers exceeded that among brides by 8.8 in 1913 and 8.9 in 1912. In the metropolitan area, where the foreign born element is especially prominent, the excess in the per cent foreign born for mothers over that for single brides was as great as 10.9 and 11.1 in 1913 and 1912, as compared with only 7.5 and 7.8 for the rural counties north of Tehachapi. Yet while the foreign born population is more massed in San Francisco than in the suburbs, the excess in the per cent born abroad among mothers over that among single brides was somewhat less for the main city (9.1 and 9.6) than for the suburban counties (12.2 and 11.9).

Conclusion. The comparison of the nativity of white brides and mothers here made gives a rough measure of the relative fecundity of American and foreign born women in California. The figures indicate that in this State, as in the whole country, the foreign born women are more prone to bear children than are the American born, whether natives of California or of other states. For the proportion foreign born is much greater among mothers than among brides, whether the comparison is made for all brides or only the single ones. However, the proportion born elsewhere in the United States than California is considerably less among mothers than among all brides, though about the same for mothers as for single brides alone. The proportion born in the Golden State, moreover, is also considerably less among mothers than among either all or only the single brides.

However, these conclusions are only tentative, because the registration of births in California does not yet seem to be quite so complete as the registration of marriages. The deficiency in the registration of births is probably greatest for births in the families of Californians and other Americans, since foreign born families from training abroad appear to realize the importance of promptly registering the births of their children. This deficiency in the registration of the births of children born to American mothers may account in part for the fact that the figures for California in 1913 and 1912 indicate that the fecundity of foreign born women is greater than that of native women. However, the recent data for California agree with the results of earlier statistical investigations in other states, so that it is quite safe to conclude that foreign born women surpass the natives, whether born in California or elsewhere, in the proclivity to bear children.

TABLE 14.—Births Classified by Sex and Race

County	Total Births	Male	Female	White		Negro	
				Total	Male	Female	Total
CALIFORNIA	43,852	22,029	21,175	40,844	21,457	19,807	343
Alameda	4,433	2,281	2,145	4,107	2,102	2,006	45
Alpine	6	4	2	6	4	2	
Amador	108	47	61	106	47	59	
Butte	431	257	194	441	259	182	1
Calaveras	104	58	46	104	58	46	
Colusa	96	52	44	88	46	42	2
Contra Costa	632	349	282	610	327	283	1
Del Norte	24	13	11	24	13	11	
El Dorado	92	54	38	92	54	38	
Fresno	1,623	831	792	1,474	760	714	10
Glenn	113	53	60	111	51	60	
Humboldt	406	207	199	400	205	195	
Imperial	257	128	129	242	120	122	4
Inyo	15	6	9	15	6	9	
Kern	620	302	318	589	282	307	5
Kings	249	129	120	223	111	112	2
Lake	79	41	38	78	41	37	
Lassen	45	28	17	45	28	17	
Los Angeles	11,937	6,224	5,743	11,207	5,812	5,395	199
Madera	153	80	73	149	78	71	1
Marin	219	125	94	213	121	92	2
Mariposa	25	13	12	25	13	12	
Mendocino	338	169	169	327	164	163	
Merced	276	130	146	267	126	141	2
Modoc	88	46	42	88	46	42	
Mono	2		2	2		2	
Monterey	348	181	167	293	143	150	1
Napa	166	87	79	153	87	76	
Nevada	133	62	71	131	60	71	
Orange	721	370	351	679	347	332	
Placer	320	160	160	240	117	123	
Plumas	50	26	24	47	24	23	
Riverside	575	292	283	546	278	268	9
Sacramento	1,584	816	768	1,274	634	640	9
San Benito	132	55	77	118	48	70	1
San Bernardino	999	479	520	980	469	511	2
San Diego	1,574	839	735	1,544	822	722	8
San Francisco	7,552	3,897	3,655	7,132	3,683	3,449	25
San Joaquin	715	384	331	570	301	269	1
San Luis Obispo	283	144	139	277	138	139	
San Mateo	479	250	229	461	245	216	1
Santa Barbara	429	221	208	384	194	188	2
Santa Clara	1,427	781	646	1,268	680	588	1
Santa Cruz	395	215	180	310	159	151	
Shasta	226	118	108	224	118	106	
Sierra	30	23	7	30	23	7	
Siskiyou	207	104	103	203	102	101	
Solano	352	182	171	313	161	152	3
Sonoma	704	343	361	681	332	349	1
Stanislaus	529	286	243	522	282	240	2
Sutter	142	78	64	135	73	62	
Tehama	124	63	73	134	63	71	
Trinity	29	19	10	28	18	10	1
Tulare	613	303	310	592	290	302	1
Tuolumne	47	24	23	46	24	22	1
Ventura	247	128	119	241	124	117	1
Yolo	178	95	83	158	83	75	1
Yuba	125	66	59	107	59	48	1

by Sex and Nativity of Mothers, for Counties: 1913.

Chinese	Japanese	White children with mothers—								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
351	2,215	12,864	6,675	6,189	16,305	8,365	7,940	11,695	6,017	5,678
63	191	1,764	906	858	1,190	597	593	1,153	599	554
		3	1	2	2	2		1	1	
1		68	29	39	10	7	3	28	11	17
4	13	205	121	84	186	105	81	50	33	17
		68	41	27	16	9	7	20	8	12
	6	55	30	25	20	11	9	13	5	8
	21	224	123	101	164	85	79	222	119	103
		6	4	2	14	6	8	4	3	1
		59	37	22	21	12	9	12	5	7
14	125	340	174	166	665	337	328	469	249	220
1	1	42	20	22	49	21	28	20	10	10
		177	91	86	92	43	49	131	71	60
	11	24	14	10	171	84	87	47	22	25
		8	4	4	7	2	5			
11	14	132	70	62	350	164	186	107	48	59
6	18	79	37	42	98	49	49	46	25	21
		56	30	26	19	8	11	3	3	
		31	18	13	10	7	3	4	3	1
22	532	1,687	888	799	6,473	3,377	3,096	3,047	1,547	1,500
		55	23	32	67	38	29	27	17	10
1	3	77	43	34	43	27	16	93	51	42
		20	11	9	3	1	2	2	1	1
3	2	161	79	82	73	38	35	93	47	46
	7	82	35	47	80	38	42	105	53	52
		50	26	24	35	18	17	3	2	1
		1		1	1		1			
2	52	167	88	79	62	28	34	64	27	37
1	2	90	47	43	42	22	20	31	18	13
2		69	28	41	24	10	14	38	22	16
	42	153	80	73	430	217	213	93	50	46
2	78	117	57	60	80	36	44	43	24	19
1		33	19	14	9	2	7	5	3	2
	18	101	52	49	330	168	162	115	58	57
21	277	561	268	293	380	193	184	333	170	163
1	12	72	29	43	15	7	8	31	12	19
	16	171	78	93	546	260	286	233	131	132
2	20	235	130	105	99	537	459	313	155	158
180	214	2,836	1,466	1,370	1,314	671	643	2,982	1,546	1,436
18	128	273	151	122	199	94	105	98	56	42
1	5	155	77	78	71	37	34	51	24	27
5	12	151	88	63	83	39	44	227	118	109
3	39	156	83	73	144	71	73	84	42	42
8	150	461	248	213	340	177	163	497	255	212
3	82	144	77	67	96	47	49	70	35	35
		122	61	61	63	34	29	39	23	16
		21	17	4	4	2	2	5	4	1
		76	40	36	58	29	29	60	33	36
2	35	161	82	79	72	35	37	80	44	36
	22	346	181	165	143	66	77	192	85	107
	5	156	81	75	274	158	116	92	43	49
1	6	73	38	35	42	24	18	20	11	9
	2	50	31	28	67	27	40	8	5	3
		21	14	7	6	3	3	1	1	
	18	147	71	76	352	172	180	93	47	46
		25	12	13	11	6	5	10	6	4
	5	87	41	46	112	61	51	42	22	20
	19	82	45	37	51	27	24	25	11	14
2	14	69	40	29	30	16	14	8	3	5

: TABLE 15.—Births Classified by Sex and Race, a

County	Total births	Male	Female	White			Negro
				Total	Male	Female	
CALIFORNIA	39,330	20,231	19,099	37,194	19,098	18,101	319
Alameda	3,893	1,976	1,917	3,635	1,855	1,780	53
Alpine	3	3		3	3		
Amador	92	54	38	92	54	38	
Butte	473	254	219	461	245	216	1
Calaveras	97	43	54	96	42	54	
Colusa	97	49	48	97	49	48	
Contra Costa	483	243	240	475	238	237	
Del Norte	31	13	18	31	13	18	
El Dorado	106	54	52	106	54	52	
Fresno	1,678	895	783	1,561	832	729	12
Glenn	127	60	67	126	60	66	
Humboldt	475	237	238	468	231	237	
Imperial	184	91	93	180	90	90	2
Inyo	9	8	1	8	7	1	1
Kern	541	296	245	520	298	232	5
Kings	243	136	107	235	131	104	
Lake	76	42	34	74	41	33	
Lassen	46	22	24	45	21	24	
Los Angeles	10,408	5,351	5,057	9,852	5,074	4,778	183
Madera	125	66	59	123	65	58	1
Marin	251	122	129	245	119	136	
Mariposa	23	16	7	21	16	5	
Mendocino	204	108	93	199	107	92	
Merced	270	138	132	265	136	129	
Modoc	79	35	44	79	35	44	
Mono	8	7	1	7	6	1	
Monterey	308	157	151	273	134	139	
Napa	174	88	86	171	86	85	
Nevada	160	84	76	156	81	75	
Orange	638	303	335	611	294	317	1
Placer	228	124	104	189	100	89	
Plumas	55	29	26	55	29	26	
Riverside	553	276	277	518	263	255	14
Sacramento	1,338	689	649	1,133	564	569	5
San Benito	136	69	67	128	63	65	
San Bernardino	927	459	468	912	455	457	2
San Diego	1,079	554	525	1,066	548	518	3
San Francisco	6,954	3,576	3,378	6,609	3,391	3,218	20
San Joaquin	601	322	279	504	265	239	1
San Luis Obispo	268	152	116	263	150	113	
San Mateo	431	213	218	418	206	212	1
Santa Barbara	464	252	212	444	241	203	1
Santa Clara	1,355	677	678	1,283	619	664	3
Santa Cruz	388	196	192	324	160	164	
Shasta	238	126	112	237	125	112	
Sierra	33	19	14	33	19	14	
Siskiyou	224	126	98	216	120	96	
Solano	347	189	158	323	177	146	4
Sonoma	540	266	274	523	255	268	
Stanislaus	558	283	275	557	282	275	
Sutter	89	47	42	85	44	41	
Tehama	113	60	53	110	59	51	1
Trinity	29	15	14	29	15	14	
Tulare	521	264	257	512	257	255	
Tuolumne	44	19	25	44	19	25	
Ventura	263	140	123	252	133	119	
Yolo	147	80	67	135	73	62	5
Yuba	105	58	47	97	54	43	

Chinese	Japa- nese	Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
321	1,467	11,864	6,055	5,809	14,613	7,581	7,032	10,717	5,457	5,260
44	161	1,516	800	716	1,086	543	543	1,033	512	521
		1	1		1	1		1	1	
		55	30	25	8	4	4	29	20	9
3	6	218	121	97	202	100	102	41	24	17
		64	27	37	19	10	9	13	5	8
		63	31	32	25	13	12	9	5	4
	8	164	83	81	125	57	68	185	98	88
		8	3	5	17	8	9	6	2	4
		70	35	35	21	12	9	15	7	8
6	20	356	200	156	710	368	342	495	264	231
	1	53	24	29	55	30	25	18	6	12
		910	118	92	102	46	56	156	67	89
	2	15	5	10	137	70	67	28	15	13
		3	3		4	3	1	1	1	
8	7	142	85	57	274	151	123	104	52	52
2	6	74	42	32	109	64	45	52	25	27
	1	55	31	24	15	7	8	4	3	1
	1	22	13	19	9	5	4	4	3	1
17	355	1,490	748	748	5,093	2,985	2,708	2,693	1,341	1,322
		46	23	23	43	22	21	34	20	14
1	5	98	52	46	44	23	21	103	44	59
2		11	10	1	8	6	2	2		2
1	1	99	63	36	40	21	19	60	23	37
1	4	94	45	49	85	40	36	86	42	44
		41	15	26	35	18	17	3	2	1
	1	3	2	1	2	2		2	2	
2	33	150	73	77	38	21	17	85	40	45
	3	74	33	41	50	31	19	47	22	25
3	1	78	43	35	33	21	12	45	17	27
	26	138	61	77	286	187	199	87	46	41
3	36	94	52	42	65	33	32	30	15	15
		34	16	18	14	8	6	7	5	2
1	15	94	58	36	314	149	165	119	56	54
16	184	535	294	271	324	174	150	274	126	148
2	6	79	38	41	25	14	11	24	11	13
	13	154	70	84	523	272	251	295	113	122
5	5	205	105	100	632	324	308	229	119	110
163	162	2,601	1,279	1,322	1,166	617	549	2,842	1,495	1,347
12	84	242	118	124	170	98	72	92	49	43
2	3	135	82	53	87	46	41	41	22	19
4	8	162	81	81	75	43	32	181	82	99
1	18	191	111	80	132	67	65	121	63	58
6	83	476	237	239	346	171	175	441	211	230
3	61	147	71	76	104	50	54	73	39	34
	1	133	67	66	71	39	32	33	19	14
		27	15	12	4	2	2	2	2	
2		81	46	35	69	34	35	64	40	26
5	15	163	84	79	97	55	42	63	38	25
	17	219	103	113	145	70	75	139	79	80
	1	159	78	81	288	144	144	119	60	59
3	1	44	21	23	28	15	13	13	8	5
	1	50	20	20	45	21	24	15	8	7
		26	12	14	2	2		1	1	
1	2	121	65	66	313	147	166	98	45	23
		26	10	16	12	5	7	6	4	2
2	9	90	43	47	118	65	53	47	25	13
	7	74	42	32	44	24	20	17	7	10
	8	65	34	31	24	14	10	8	6	2

TABLE 16.—Births Classified by Sex and Race

City	Total births	Male	Female	White			Negro
				Total	Male	Female	
32 FREEHOLDERS' CHARTER CITIES	27,759	14,278	13,481	26,076	13,377	12,699	303
*Alameda County	343	183	160	314	165	149	1
Alameda City	372	194	178	325	167	158	1
Berkeley town	737	371	366	712	356	356	1
Oakland City	2,954	1,513	1,441	2,756	1,414	1,342	42
*Contra Costa County	335	183	152	319	173	146	—
Richmond City	297	157	140	291	154	137	1
*Fresno County	967	512	455	872	467	405	5
Fresno City	656	319	337	602	293	309	5
*Humboldt County	188	88	100	184	86	98	—
Eureka City	218	119	99	216	119	97	—
*Los Angeles County	2,323	1,248	1,075	2,104	1,128	976	6
Long Beach City	450	258	192	433	247	186	—
Los Angeles City	8,216	4,242	3,974	7,719	3,976	3,743	174
Pasadena City	638	305	333	617	293	324	10
Pomona City	150	70	80	149	69	80	—
Santa Monica City	190	101	89	185	99	86	3
Marin County	180	103	77	176	101	75	—
San Rafael City	39	22	17	37	20	17	2
*Monterey County	221	122	99	174	90	84	—
Monterey City	69	26	43	61	20	41	1
Salinas City	58	33	25	56	33	23	—
*Napa County	86	45	41	83	45	38	—
Napa City	80	42	38	80	42	38	—
*Nevada County	109	52	57	108	51	57	—
Grass Valley City	24	10	14	23	9	14	—
*Riverside County	293	147	146	288	145	143	1
Riverside City	282	145	137	258	133	125	8
*Sacramento County	301	176	125	137	80	57	—
Sacramento City	1,283	640	643	1,137	554	583	9
*San Bernardino County	752	356	396	738	348	390	2
San Bernardino City	247	123	124	242	121	121	—
*San Diego County	463	234	169	306	232	166	—
San Diego City	1,171	605	566	1,146	590	556	8
San Francisco (City and County)	7,552	3,897	3,655	7,132	3,683	3,449	26
*San Joaquin County	478	260	218	374	194	180	1
Stockton City	237	124	113	196	107	89	—
*San Luis Obispo County	177	88	89	172	83	89	—
San Luis Obispo City	106	56	50	105	55	50	—
*Santa Barbara County	258	139	119	221	117	104	1
Santa Barbara City	171	82	89	163	79	84	1
*Santa Clara County	807	453	354	681	372	309	—
Palo Alto City	34	19	15	29	17	12	—
San Jose City	586	300	277	538	291	267	1
*Santa Cruz County	87	46	41	80	41	39	—
Santa Cruz City	121	63	58	121	63	58	—
Watsonville City	187	105	81	109	55	54	—
*Solano County	153	72	81	124	57	67	—
Vallejo City	200	110	90	189	104	85	3
*Sonoma County	390	192	198	373	183	190	—
Petaluma City	130	63	67	129	63	66	—
Sanita Rosa City	184	88	96	179	86	93	—
*Stanislaus County	469	220	189	403	217	186	1
Modesto City	120	66	54	119	65	54	1

by Sex and Nativity of Mothers, for Cities: 1913.

Chinese	Japanese	White children with mothers—								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
314	1,068	7,846	4,052	3,794	10,048	5,156	4,892	8,182	4,169	4,013
1	27	151	78	73	55	27	28	108	60	48
3	43	155	84	71	100	50	50	70	33	37
4	20	274	147	127	257	120	137	181	89	92
55	101	1,184	597	587	778	400	378	794	417	377
-----	16	127	64	63	60	34	26	132	75	57
-----	5	97	59	38	104	51	53	90	44	46
2	88	183	102	81	429	219	210	260	146	114
12	37	157	72	85	236	118	118	200	103	106
-----	-----	86	40	46	35	14	21	63	32	31
-----	-----	91	51	40	57	29	28	68	39	29
-----	209	348	206	142	1,261	668	593	495	254	241
-----	17	45	23	22	323	191	132	65	33	32
22	206	1,159	587	572	4,229	2,199	2,030	2,331	1,190	1,141
-----	5	69	36	33	440	210	230	108	47	61
-----	1	24	10	14	111	52	59	14	7	7
-----	2	42	26	16	109	57	52	34	16	18
1	3	67	38	29	33	20	13	76	43	33
-----	-----	10	5	5	10	7	3	17	8	9
2	45	101	57	44	37	17	20	36	16	20
-----	7	31	9	22	14	6	8	16	5	11
-----	-----	35	22	13	11	5	6	12	6	6
1	2	47	24	23	16	10	6	20	11	9
-----	-----	43	23	20	26	12	14	11	7	4
1	-----	55	21	34	20	9	11	33	21	12
1	-----	14	7	7	4	1	3	5	1	4
-----	3	64	31	33	166	82	84	58	32	26
-----	15	37	21	16	164	86	78	57	26	31
12	150	64	37	27	44	25	19	29	18	11
9	127	497	231	266	336	171	165	304	152	152
-----	11	126	54	72	409	193	216	203	101	102
-----	5	45	24	21	137	67	70	60	30	30
-----	5	66	40	26	256	146	110	76	46	30
2	15	169	90	79	740	391	349	237	109	128
180	214	2,836	1,466	1,370	1,314	671	643	2,982	1,546	1,436
5	96	172	96	76	142	65	77	60	33	27
13	28	101	55	46	57	29	28	38	23	15
-----	5	97	46	51	37	20	17	38	17	21
1	-----	58	31	27	34	17	17	13	7	6
1	35	112	63	49	63	31	32	46	23	23
2	4	44	20	24	81	40	41	38	19	19
2	124	248	132	116	203	109	94	230	131	99
-----	5	11	7	4	11	6	5	7	4	3
6	21	202	100	98	126	62	64	230	120	110
-----	7	33	12	21	27	17	10	20	12	8
-----	-----	51	29	22	47	23	24	23	11	12
3	75	60	36	24	22	7	15	27	12	15
1	28	60	24	36	28	11	17	36	22	14
1	7	101	58	43	44	24	20	44	22	22
-----	16	193	94	99	69	39	30	111	50	61
-----	1	71	38	33	25	10	15	33	15	18
-----	5	82	49	33	49	17	32	48	20	28
-----	5	105	51	54	222	131	91	76	35	41
-----	-----	51	30	21	52	27	25	16	8	8

*Figures are for county exclusive of freeholders' charter city or cities.

TABLE 17.—Births Classified by Sex and Race, and

City	Total births	Male	Female	White			Negro	Indian
				Total	Male	Female		
31 FREEHOLDERS' CHARACTER CITIES	24,827	12,721	12,106	23,494	12,030	11,464	276	3
Alameda County	302	140	162	278	134	144	4	
Alameda City	357	184	173	315	108	147	2	
Berkeley City	629	343	286	600	324	276	2	
Oakland City	2,606	1,309	1,296	2,442	1,229	1,213	45	
Contra Costa County	250	130	120	244	125	119		
Richmond City	233	113	120	231	113	118		
Fresno County	1,018	575	443	942	533	409	7	
Fresno City	660	320	349	619	299	320	5	
Humboldt County	213	103	110	208	99	109		5
Eureka City	262	134	128	260	132	128		2
Los Angeles County	1,931	976	955	1,805	905	900	6	
Long Beach City	346	180	166	336	174	162	2	
Los Angeles City	7,232	3,729	3,533	6,870	3,543	3,327	152	1
Pasadena City	554	305	249	533	294	239	17	
Pomona City	172	90	82	170	89	81	1	
Santa Monica City	143	71	72	138	69	69	5	
Monterey County	162	79	83	141	63	75		
Monterey City	75	41	34	63	33	30		
Salinas City	71	37	34	69	35	34		
Napa County	90	48	42	88	46	42		
Napa City	84	40	44	83	40	43		
Nevada County	118	64	54	116	63	53		
Grass Valley City	42	20	22	40	18	22		
Riverside County	274	139	135	265	136	129	3	5
Riverside City	279	137	142	253	127	126	11	
Sacramento County	258	142	116	142	71	71		
Sacramento City	1,080	547	533	991	493	498	5	
San Bernardino County	737	367	370	728	361	332	2	
San Bernardino City	190	92	98	184	89	95		
San Diego County	317	160	157	317	160	157		
San Diego City	762	394	368	749	388	361	3	
San Francisco (City and County)	6,954	3,576	3,378	6,009	3,391	3,218	20	
San Joaquin County	288	167	121	223	128	95		
Stockton City	313	155	158	281	137	144	1	
San Luis Obispo County	144	79	65	141	78	63		
San Luis Obispo City	124	73	51	122	72	50		
Santa Barbara County	274	152	122	256	143	113	1	
Santa Barbara City	190	100	90	188	98	90		
Santa Clara County	783	398	385	719	359	360		
Palo Alto City	49	25	23	43	23	20		
San Jose City	523	253	270	501	237	264	3	
Santa Cruz County	85	40	45	73	35	38		
Santa Cruz City	141	76	65	136	72	64		
Watsonville City	162	80	82	115	53	62		
Solano County	165	87	78	148	80	68	2	
Vallejo City	182	102	80	175	97	78	2	
Sonoma County	288	136	152	275	125	150		
Petaluma City	79	38	41	78	38	40		
Santa Rosa City	173	92	81	170	92	78		
Stanislaus County	427	219	208	427	219	208		
Modesto City	131	64	67	130	63	67		

by Sex and Nativity of Mothers, for Cities: 1912.

Chinese	Japanese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
261	793	7,118	3,588	3,530	8,878	4,609	4,269	7,498	3,833	3,665
1	19	142	70	72	50	25	25	86	39	47
2	38	139	78	61	92	43	49	84	47	37
3	24	236	130	106	230	124	106	134	70	64
38	80	999	522	477	714	351	363	729	356	373
-----	6	101	53	48	43	19	24	100	53	47
-----	2	63	30	33	82	38	44	86	45	41
1	68	201	125	76	471	251	220	270	157	113
5	31	155	75	80	239	117	122	225	107	118
-----	-----	90	49	41	48	21	27	70	29	41
-----	-----	120	69	51	54	25	29	86	38	48
-----	120	321	150	171	1,033	540	493	451	215	236
-----	8	33	17	16	259	136	123	44	21	23
17	222	1,021	517	504	3,807	1,988	1,819	2,042	1,038	1,004
-----	4	58	32	26	385	212	173	90	50	40
-----	1	42	22	20	115	61	54	13	6	7
-----	-----	21	10	11	94	48	46	23	11	12
-----	21	81	39	42	11	8	3	49	19	30
2	10	34	17	17	13	7	6	16	9	7
-----	2	35	17	18	14	6	8	20	12	8
-----	2	48	25	23	18	11	7	22	10	12
-----	1	26	8	18	32	20	12	25	12	13
1	1	56	34	22	25	16	9	35	13	22
2	-----	22	9	13	8	5	3	10	4	6
-----	1	58	36	22	153	73	80	54	27	27
1	14	36	22	14	161	76	85	56	29	27
11	105	69	35	34	42	20	22	31	16	15
5	79	466	229	237	282	154	128	243	110	133
-----	7	112	52	60	426	221	205	190	93	97
-----	6	42	18	24	97	51	46	45	20	25
-----	-----	75	36	39	184	96	88	58	28	30
5	5	130	69	61	448	228	220	171	91	80
163	162	2,601	1,279	1,322	1,166	617	549	2,842	1,495	1,347
7	58	97	56	41	87	51	36	39	21	18
5	26	145	62	83	83	47	36	53	28	25
-----	3	68	39	29	44	22	22	29	17	12
2	-----	67	43	24	43	24	19	12	5	7
1	16	125	74	51	70	35	35	61	34	27
-----	2	66	37	29	62	32	30	60	29	31
-----	64	273	141	132	223	108	115	223	110	113
-----	6	13	5	8	19	11	8	11	7	4
6	13	190	91	99	104	52	52	207	94	113
-----	12	24	12	12	25	14	11	24	9	15
1	4	60	28	32	48	27	21	28	17	11
2	45	63	31	32	31	9	22	21	13	8
3	12	78	40	38	42	22	20	28	18	10
2	3	86	44	41	55	33	22	35	20	15
-----	13	116	52	64	72	35	37	87	38	49
-----	1	30	14	16	20	7	13	28	17	11
-----	3	73	40	33	53	28	25	44	24	20
-----	-----	112	55	57	220	112	108	95	52	43
-----	1	47	23	24	68	32	36	15	8	7

TABLE 18.—Births Classified by Sex, Race, and Nativity of Mothers, with Per Centa by Sex for Geographic Divisions: 1913 and 1912.

Geographic division and race or nativity of mother	Births						Per cent male		Per cent female	
	Total		Male		Female					
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
THE STATE-----	43,852	39,330	22,699	20,231	21,153	19,099	51.8	51.4	48.2	48.6
White	40,864	37,194	21,057	19,093	19,807	18,101	51.5	51.3	48.5	48.7
Born in California.....	12,864	11,814	6,675	6,055	6,189	5,809	51.9	51.0	48.1	49.0
Born in other states.....	16,305	14,613	8,365	7,581	7,940	7,032	51.3	51.9	48.7	48.1
Foreign born	11,095	10,717	6,017	5,457	5,678	5,269	51.4	50.9	48.6	49.1
Non-caucasian	2,988	2,136	1,642	1,138	1,346	998	55.0	53.3	45.0	46.7
Northern California-----	3,918	3,596	2,025	1,862	1,893	1,734	51.7	51.8	48.3	48.2
White	3,725	3,481	1,929	1,789	1,790	1,692	51.8	51.4	48.2	48.6
Born in California.....	1,879	1,704	992	894	887	810	52.8	52.5	47.2	47.5
Born in other states.....	1,066	1,050	528	538	538	512	49.5	51.2	50.5	48.8
Foreign born	780	727	499	357	371	370	52.4	49.1	47.6	50.9
Non-caucasian	193	115	96	73	97	42	49.7	63.5	50.3	36.5
Coast counties	1,746	1,529	879	769	867	760	50.3	50.3	49.7	49.7
White	1,701	1,495	860	748	841	747	50.6	50.0	49.4	50.0
Born in California.....	857	691	446	366	411	325	52.0	53.0	48.0	47.0
Born in other states.....	389	371	183	185	203	186	47.8	49.9	52.2	50.1
Foreign born	455	433	228	197	227	236	50.1	45.5	49.9	54.5
Non-caucasian	45	34	19	21	26	13	42.2	61.8	57.8	38.2
Interior counties	2,172	2,067	1,143	1,093	1,026	974	52.8	52.9	47.2	47.1
White	2,024	1,986	1,069	1,041	955	945	52.8	52.4	47.2	47.6
Born in California.....	1,022	1,013	546	528	476	485	52.4	52.1	47.6	47.9
Born in other states.....	677	679	342	353	335	326	50.5	52.0	49.5	48.0
Foreign born	325	294	181	160	144	134	55.7	54.4	44.3	45.6
Non-caucasian	148	81	77	52	71	29	52.0	64.2	48.0	35.8
Central California-----	23,165	21,218	11,993	10,943	11,172	10,275	51.8	51.6	48.2	48.4
White	21,316	19,878	10,930	10,206	10,356	9,672	51.4	51.3	48.6	48.7
Born in California.....	8,371	7,777	4,317	3,930	4,054	3,817	51.6	50.9	48.4	49.1
Born in other states.....	6,037	5,628	3,062	2,924	2,975	2,704	50.7	52.0	49.3	48.0
Foreign born	6,908	6,473	3,581	3,322	3,327	3,151	51.8	51.3	48.2	48.7
Non-caucasian	1,849	1,340	1,033	737	816	603	55.9	55.0	44.1	45.0
San Francisco	7,552	6,954	3,897	3,576	3,655	3,378	51.6	51.4	48.4	48.6
White	7,132	6,609	3,683	3,391	3,449	3,218	51.6	51.3	48.4	48.7
Born in California.....	2,836	2,601	1,466	1,279	1,370	1,222	51.7	49.2	48.3	50.8
Born in other states.....	1,314	1,165	671	617	643	549	51.1	52.9	48.9	47.1
Foreign born	2,982	2,842	1,546	1,495	1,436	1,347	51.8	52.6	48.2	47.4
Non-caucasian	420	345	214	185	203	160	51.0	53.6	49.0	45.4
Other bay counties.....	5,736	5,058	2,976	2,554	2,700	2,504	51.9	50.5	48.1	49.5
White	5,391	4,773	2,795	2,418	2,506	2,355	51.8	50.7	48.2	49.3
Born in California.....	2,216	1,940	1,160	1,016	1,056	924	52.3	52.4	47.7	47.6
Born in other states.....	1,480	1,330	748	666	732	664	50.5	50.1	49.5	49.9
Foreign born	1,695	1,503	887	735	808	767	52.3	49.0	47.7	51.0
Non-caucasian	345	285	181	135	164	149	52.5	47.7	47.5	52.3
Coast counties	2,585	2,455	1,376	1,251	1,209	1,204	53.2	51.0	46.8	49.0
White	2,266	2,251	1,168	1,126	1,088	1,125	51.5	50.0	48.5	50.0
Born in California.....	969	987	519	501	486	52.0	50.8	48.0	49.2	
Born in other states.....	584	600	295	322	288	298	50.7	50.3	49.3	49.7
Foreign born	683	664	353	323	330	341	51.7	48.6	48.3	51.4
Non-caucasian	319	204	268	125	111	79	65.2	61.3	34.8	38.7
Interior counties	7,292	6,751	3,744	3,562	3,548	3,189	51.3	52.8	48.7	47.2
White	6,527	6,245	3,314	3,271	3,213	2,974	50.8	52.4	49.2	47.6
Born in California.....	2,320	2,249	1,172	1,164	1,148	1,085	50.5	51.8	49.5	48.2
Born in other states.....	2,659	2,532	1,347	1,339	1,312	1,193	50.7	52.9	49.3	47.1
Foreign born	1,548	1,464	795	768	753	691	51.4	52.5	48.6	47.5
Non-caucasian	765	506	430	291	335	215	56.2	57.5	43.8	42.5

TABLE 18—Continued.

Geographic division and race or nativity of mother	Births						Per cent male		Per cent female	
	Total		Male		Female		1913	1912	1913	1912
	1913	1912	1913	1912	1913	1912				
<i>Southern California</i>	16,769	14,516	8,681	7,423	8,068	7,090	51.8	51.2	48.2	48.8
White	15,823	13,835	8,168	7,008	7,655	6,737	51.6	51.3	48.4	48.7
Born in California	2,614	2,383	1,368	1,201	1,248	1,182	52.3	50.4	47.7	49.6
Born in other states	9,202	7,935	4,775	4,119	4,427	3,816	51.9	51.9	48.1	48.1
Foreign born	4,007	3,517	2,027	1,778	1,980	1,739	50.6	50.6	49.4	49.4
Non-caucasian	946	681	513	328	433	353	54.2	48.2	45.8	51.8
Los Angeles	11,967	10,408	6,224	5,351	5,743	5,067	52.0	51.4	49.0	48.6
White	11,207	9,852	5,812	5,074	5,395	4,778	51.9	51.5	48.1	48.5
Born in California	1,687	1,493	888	748	799	748	52.6	50.0	47.4	50.0
Born in other states	6,473	5,693	3,377	2,985	3,093	2,708	52.2	52.4	47.8	47.6
Foreign born	3,047	2,663	1,547	1,341	1,500	1,322	50.8	50.4	49.2	49.6
Non-caucasian	760	556	412	277	348	279	54.2	49.8	45.8	50.2
Other counties	4,802	4,108	2,457	2,075	2,345	2,033	51.2	50.5	48.8	49.5
White	4,616	3,983	2,356	2,024	2,260	1,959	51.0	50.8	49.0	49.2
Born in California	927	887	478	433	449	434	51.6	51.1	48.4	48.9
Born in other states	2,729	2,242	1,308	1,134	1,331	1,108	51.2	50.6	48.8	49.4
Foreign born	960	854	480	437	480	417	50.0	51.2	50.0	48.8
Non-caucasian	186	125	101	51	85	74	54.3	40.8	45.7	50.2
<i>Northern and Central California</i>	27,083	24,814	14,018	12,806	13,065	12,009	51.8	51.6	48.2	48.4
White	25,041	23,359	12,889	11,995	12,152	11,364	51.5	51.4	48.5	48.6
Born in California	10,250	9,481	5,309	4,854	4,941	4,627	51.8	51.2	48.2	48.8
Born in other states	7,103	6,678	3,560	3,462	3,513	3,216	50.5	51.8	49.5	48.2
Foreign born	7,688	7,200	3,990	3,679	3,698	3,521	51.9	51.1	48.1	48.9
Non-caucasian	2,042	1,455	1,129	810	913	645	55.3	55.7	44.7	44.3
Coast counties	17,619	15,993	9,128	8,150	8,491	7,846	51.8	51.0	48.2	49.0
White	16,490	15,128	8,506	7,683	7,984	7,445	51.6	50.8	48.4	49.2
Born in California	6,908	6,219	3,591	3,162	3,317	3,067	52.0	50.8	48.0	49.2
Born in other states	3,767	3,467	1,901	1,770	1,866	1,697	50.5	51.1	49.5	48.9
Foreign born	5,815	5,442	3,014	2,751	2,801	2,691	51.8	50.6	48.2	49.4
Non-caucasian	1,129	898	622	467	507	401	55.1	53.8	44.9	46.2
Interior counties	9,464	8,818	4,890	4,655	4,574	4,163	51.7	52.8	48.3	47.2
White	8,551	8,231	4,383	4,312	4,168	3,919	51.3	52.4	48.7	47.6
Born in California	3,342	3,262	1,718	1,602	1,624	1,570	51.4	51.9	48.6	48.1
Born in other states	3,336	3,211	1,689	1,602	1,647	1,519	50.6	52.7	49.4	47.3
Foreign born	1,873	1,758	976	928	897	830	52.1	52.8	47.9	47.2
Non-caucasian	913	587	507	343	406	244	55.5	58.4	44.5	41.6
Metropolitan area	13,288	12,012	6,873	6,130	6,415	5,882	51.7	51.0	48.3	49.0
White	12,523	11,382	6,478	5,809	6,045	5,573	51.7	51.0	48.3	49.0
Born in California	5,062	4,541	2,626	2,295	2,426	2,243	52.0	50.5	48.0	49.5
Born in other states	2,794	2,495	1,419	1,283	1,375	1,213	50.8	51.4	49.2	48.6
Foreign born	4,677	4,345	2,433	2,231	2,244	2,114	52.0	51.3	48.0	48.7
Non-caucasian	765	630	395	321	370	309	51.6	51.0	48.4	49.0
Rural counties	13,795	12,892	7,145	6,675	6,650	6,127	51.8	52.1	48.2	47.9
White	12,518	11,977	6,411	6,186	6,107	5,791	51.2	51.6	48.8	48.4
Born in California	5,198	4,940	2,683	2,559	2,515	2,381	51.6	51.8	48.4	48.2
Born in other states	4,309	4,182	2,171	2,179	2,128	2,063	50.1	52.1	49.6	47.9
Foreign born	3,011	2,855	1,557	1,448	1,454	1,407	51.7	50.7	48.3	49.3
Non-caucasian	1,277	825	734	489	543	336	57.5	59.3	42.5	49.7

TABLE 19.—Births Classified by Sex, Race, and Nativity of Mothers, with Per Cents by Sex, for Cities and Rest of State: 1913 and 1912.

Population group and race or nativity of mother	Births						Per cent male		Per cent female	
	Total		Male		Female		1913	1912	1913	1912
	1913	1912	1913	1912	1913	1912				
CALIFORNIA	43,852	39,330	22,699	20,231	21,153	19,099	51.8	51.4	48.2	48.6
White	40,864	37,194	21,057	19,003	19,807	18,101	51.5	51.3	48.5	48.7
Born in California.....	12,864	11,864	6,675	6,055	6,189	5,809	51.9	51.0	48.1	49.0
Born in other states....	16,305	14,613	8,365	7,581	7,940	7,032	51.3	51.9	48.7	48.1
Foreign born	11,695	10,717	6,017	5,457	5,678	5,260	51.4	50.9	48.6	49.1
Non-caucasian	2,988	2,136	1,642	1,138	1,346	998	55.0	53.3	45.0	46.7
FREEHOLDERS' CHARTER CITIES	27,759	24,827	14,278	12,721	13,481	12,106	51.4	51.2	48.6	48.8
White	26,076	23,494	13,377	12,030	12,699	11,464	51.3	51.2	48.7	48.8
Born in California.....	7,846	7,118	4,052	3,588	3,794	3,530	51.6	50.4	48.4	49.6
Born in other states....	10,048	8,878	5,156	4,009	4,892	4,269	51.3	51.9	48.7	48.1
Foreign born	8,182	7,498	4,169	3,833	4,013	3,665	51.0	51.1	49.0	48.9
Non-caucasian	1,683	1,333	901	691	782	642	53.5	51.8	43.5	48.2
REST OF STATE	16,093	14,503	8,421	7,510	7,672	6,993	52.3	51.8	47.7	48.2
White	14,788	13,700	7,680	7,063	7,106	6,637	51.9	51.6	48.1	48.4
Born in California.....	5,018	4,746	2,623	2,467	2,395	2,279	52.3	52.0	47.7	48.0
Born in other states....	6,257	5,735	3,209	2,972	3,048	2,763	51.3	51.8	48.7	48.2
Foreign born	3,513	3,219	1,848	1,624	1,665	1,595	52.6	50.5	47.4	49.5
Non-caucasian	1,305	803	741	447	564	356	53.8	56.7	43.2	44.3

III. STATISTICS OF DEATHS: 1913 AND 1912.

SYNOPSIS.

Causes of Death.—Diseases of the circulatory system (heart disease, etc.) constitute the principal group of causes of death in California, the per cent of total deaths for this group being 16.3 in 1913 and 17.4 in 1912 against the annual average of 16.3 for 1909 to 1913, and the death rates per 100,000 population being 235.1 and 247.2 as compared with the annual average of 226.3 for the last five years.

Tuberculosis, however, is the leading single cause of death in this State, causing about one seventh of all deaths (14.0 per cent for both 1913 and 1912 against the average of 14.6 for 1909 to 1913). The tuberculosis death rate per 100,000 population was 202.2 in 1913 and 198.8 in 1912 against 202.4 for the five-year period.

The per cents of total deaths for diseases of the respiratory system (pneumonia, etc.) were 9.9 and 10.5 (against the average of 10.0), while the death rates per 100,000 population for this class of diseases were 142.5 and 148.9 (against the average of 138.4).

For diseases of the nervous system the per cents were 9.6 and 8.9 as compared with the average of 9.3, and the death rates were 139.2 in 1913 and 126.6 in 1912 as compared with the average of 128.7 for 1909 to 1913.

Other prominent causes of death in 1913 and 1912 were: Diseases of the digestive system, miscellaneous violence, cancer, and Bright's disease.

Typhoid fever, as usual, was the most fatal epidemic disease, causing 1.1 per cent of all deaths in 1913 and 1.2 per cent in 1912 against the average of 1.3 for the five-year period just ended. However, the deaths from typhoid fever decreased generally through the whole eight years last past, the successive totals being as follows: 657 (1906), 558, 540, 461, 477, 444, 454, and 436 (1913).

Other notable epidemic diseases present in 1913 and 1912 were: Whooping-cough, diphtheria and croup, measles, influenza, malarial fever, scarlet fever, smallpox (causing 15 deaths in 1913 and 16 in 1912), and plague (causing 2 deaths in 1913 against none in 1912).

Geographic Divisions.—Analysis of causes of death in different localities reveals marked contrasts between the several geographic divisions in the relative prevalence of various diseases.

In the coast counties of both Northern and Central California, as well as in Southern California outside Los Angeles, relatively high proportions of all deaths are due to diseases of the nervous system, the explanation being the presence of state hospitals in these three geographic divisions.

The interior counties of Northern California show high proportions for miscellaneous deaths from violence, as drowning, railroad injuries, other accidents, etc.

In the interior counties of both Central and Northern California, and also in the counties south of Tehachapi other than Los Angeles, the proportions are very high for typhoid fever.

Each year large proportions of all deaths in San Francisco and the other bay counties were from diseases of the circulatory system (heart disease, etc.) and also from pneumonia. San Francisco, furthermore, leading especially in the proportion of suicides among all decedents.

The proportion of deaths from tuberculosis was very high indeed each year in Los Angeles, as well as in the other counties of Southern California, on account of the many deaths occurring among newcomers from the East.

Contrast between mortality in the metropolitan area and in the rural counties north of Tehachapi shows that the urban territory excels in deaths from heart disease, Bright's disease, cancer, pneumonia, digestive ailments (except diarrhea), and suicide, as well as from diphtheria and croup, while the country districts excel in deaths from diseases of the nervous system, infantile diarrhea, accidental violence and "old age," as well as typhoid fever, malarial fever, scarlet fever, whooping-cough and measles.

Much the same contrast appears between mortality in chartered cities as a class and in all the rest of the State as a whole, the deaths from diarrhea and enteritis (under 2 years) being notably less within cities than outside them.

Tuberculosis.—The "great white plague" caused 5,402 deaths in 1913 and 5,128 in 1912, the per cent being 14.0 each year against the average of 14.6 for 1909 to 1913. The average per cent of total deaths from tuberculosis in the five years last past was no less than 18.6 for Southern California against only 12.6 for Northern and Central California together.

Among cities, the annual average per cent of tuberculosis deaths was highest for San Bernardino, Riverside, Pasadena, Los Angeles, Stockton, and San Diego, all except Stockton (with a state hospital) being in Southern California. The per cent was relatively low for Richmond, Long Beach, Berkeley, Santa Monica, Alameda, Palo Alto, Salinas, Vallejo, Santa Cruz, Oakland, and Fresno, all these cities except Long Beach and Santa Monica being north of Tehachapi.

Classification of deaths from tuberculosis by length of residence shows that north of Tehachapi many native Californians and old time residents succumb to this disease. The annual average per cent of native Californians among tuberculosis victims in 1909 to 1913 was 38.8 for Northern and Central California together against only 15.8 for Southern California, being 29.0 for the entire State. Similarly, the average per cent who had lived here at least 10 years was 28.4 for the territory north of Tehachapi as compared with only 20.2 for that to the south, being 24.9 for the State as a whole.

South of Tehachapi, on the other hand, deaths from tuberculosis occur largely among newly arrived consumptives. The annual average per cent of tuberculosis victims who had lived in the State less than 10 years was as great as 55.8 for Southern California against merely 18.1 for the territory north of Tehachapi and 34.2 for the whole State. Moreover, the length of residence in California was less than a year for an average of 16.8 per cent of the tuberculosis victims south of Tehachapi, the corresponding average per cent for the entire State being only 9.2. In fact, of all who died of tuberculosis in Southern California, an average of 1.8 per cent had been in the State less than

a month, 6.3 per cent less than three months, and altogether 11.1 per cent less than half a year.

Among tuberculosis victims in cities, the average per cents for residents of less than 10 years' standing in 1909 to 1913 were as follows: Pasadena, 66.4; Riverside, 59.9; San Diego, 58.6; San Bernardino, 57.4, and Los Angeles, 57.0. Moreover, the average per cents for residents of less than a single year's standing were thus: San Diego, 21.3; Pasadena, 19.1; Riverside, 18.0; Los Angeles, 15.9, and San Bernardino, 15.2.

Figures for 1910 to 1913 indicate that the months of greatest mortality from tuberculosis for California as a whole are February, March, April and May, while deaths from this disease are relatively least numerous in August, September, October and November.

In short, the death rate of California is evidently swollen considerably by deaths occurring here from disease contracted elsewhere. For where tuberculosis is most prevalent a large proportion of the victims are residents of very short standing. Moreover, infection from these newly arrived consumptives accounts for some of the deaths among native Californians and old-time residents.

Sex.—Of 38,599 decedents in 1913, the males were 23,807 and the females 14,792, while among the 36,709 in 1912 the males were 22,634 and the females 14,075. The per cent male was 61.7 for both 1913 and 1912 against the average of 62.0 for 1909 to 1913. Each year the per cent male was highest for Northern California and next for Central California.

The per cents male were above the general average for deaths from suicide, other violence, typhoid fever, pulmonary tuberculosis, Bright's disease, and heart disease, etc. The female decedents outnumbered the males each year only for whooping-cough, cancer, scarlet fever, influenza, and measles.

Race.—In 1913 the white decedents numbered 36,501; the Chinese, 707; the Japanese, 613; the negroes, 595, and the Indians, 183. The figures for 1912 were: White, 34,732; Chinese, 741; negroes, 543; Japanese, 524, and Indian, 169. The per cent white in each case was 94.6, or the same as the average for the last five years. Each year the per cent white was highest for Southern California.

The per cents white were very high for deaths from diphtheria and croup, influenza, measles, cancer, Bright's disease, and diseases of the circulatory, nervous, and respiratory systems.

The proportion of Caucasians among all decedents was low each year for typhoid fever, which causes many deaths of Japanese, and for tuberculosis, which kills many Chinese and negroes.

Nativity.—Of the white decedents in 1913 and 1912 those born in other states were 14,297 and 13,617; the foreign born were 11,404 and 10,936; those born in California were 9,675 and 9,143; and the nativity was unknown for 1,125 and 1,636. The per cent distribution of white decedents in 1913 and 1912, respectively, was: Other states, 39.2 each year; foreign countries, 31.2 and 31.5; California, 26.5 and 26.3; and unknown, 3.1 and 3.0. For 1909 to 1913, moreover, the annual average per cents were: Other American, 38.1; foreign, 31.7; Californian, 27.2; and unknown, 3.0.

The proportion born elsewhere in the United States is very high for Southern California, especially Los Angeles. The proportion foreign

born is notably great only for Central California, especially for San Francisco and the other bay counties. The proportion of native Californians among decedents was greatest each year in Central California, and next in Northern California.

The proportion of native Californians is especially great for deaths from early infancy, diarrhea and enteritis, whooping-cough, measles diphtheria and croup, scarlet fever, meningitis, tuberculosis other than pulmonary, pneumonia, typhoid fever, malarial fever and childbirth.

The per cents born in other states were above the general averages for deaths from influenza, diseases of the nervous system other than meningitis, Bright's disease, cancer, diseases of the circulatory system, diarrhea and enteritis (2 years and over), pulmonary tuberculosis, and general diseases other than tuberculosis and cancer (*i. e.*, diabetes, alcoholism, etc.).

The proportions foreign born were above the general averages for deaths from heart disease, etc., cancer, Bright's disease, suicide and other violence, and diseases of the respiratory, nervous and digestive systems except pneumonia, meningitis and diarrhea, respectively.

Age Periods.—The deaths in 1913 and 1912, respectively, were distributed by age periods as follows: Under 1 year, 4,336 and 3,942; 1 to 4 years, 1,631 and 1,616; 5 to 14 years, 1,048 and 977; 15 to 24 years, 2,273 and 2,252; 25 to 34 years, 3,762 and 3,636; 35 to 44 years, 4,215 and 4,062; 45 to 54 years, 4,670 and 4,489; 55 to 64 years, 5,037 and 4,747; and 65 years and over, 11,627 and 10,988.

The corresponding per cents for 1913 and 1912 were: Under 1 year, 11.2 and 10.8; 1 to 4 years, 4.2 and 4.4; 5 to 14 years, 2.7 each year; 15 to 24 years, 5.9 and 6.1; 25 to 34 years, 9.8 and 9.9; 35 to 44 years, 10.9 and 11.1; 45 to 54 years, 12.1 and 12.2; 55 to 64 years, 13.1 and 12.9; and 65 years and over, 30.1 and 29.9. Moreover, the annual average per cent distribution for 1911 to 1913 was: Under 1 year, 10.8; 1 to 4 years, 4.2; 5 to 14 years, 2.7; 15 to 24 years, 6.2; 25 to 35 years, 9.9; 35 to 44 years, 11.2; 45 to 54 years, 12.1; 55 to 64 years, 13.0; and 65 years and over, 29.9.

The median age of California decedents, half being younger and half older, was 49.36 years for 1913, and 49.16 years for 1912, as compared with 48.83 years for 1911.

The per cents of deaths under 15 years vary irregularly among geographic divisions. However, the per cents are relatively high at 15 to 44 years for Southern California, probably on account of deaths from tuberculosis; at 45 to 64 years for Central California, especially San Francisco; and at 65 years and over for Northern California.

Under 1 year occur large proportions of deaths from early infancy and infantile diarrhea, whooping-cough, measles, meningitis, and pneumonia.

At 1 to 4 years the diseases especially fatal are measles, scarlet fever, diphtheria and croup, whooping-cough, meningitis, diarrhea and enteritis, tuberculosis of other organs than the lungs, malarial fever, pneumonia and other diseases of the respiratory system, and miscellaneous violence (accidental injuries, etc.).

At 5 to 14 years the diseases causing exceptionally large proportions of deaths are diphtheria and croup, scarlet fever, meningitis, tuberculosis other than pulmonary, measles, typhoid fever, malarial fever, mis-

cellaneous violence, whooping-cough, diarrhea and other diseases of the digestive system, and general diseases other than tuberculosis and cancer.

The proportion of deaths is notably high for successive productive ages as follows: At 15 to 24 years for childbirth, typhoid fever, tuberculosis, suicide and other violence, and diseases of the digestive system other than diarrhea; at 25 to 34 years for childbirth, tuberculosis, typhoid fever, suicide and other violence; at 35 to 44 years for childbirth, suicide and other violence, tuberculosis, typhoid fever, general diseases (diabetes, alcoholism, etc.), and diseases of the digestive system except diarrhea; at 45 to 54 years for cancer, suicide and other violence, general diseases, diseases of the digestive system except diarrhea, pulmonary tuberculosis, Bright's disease, and diseases of the nervous system except meningitis; and at 55 to 64 years for cancer, Bright's disease, heart disease, etc., diseases of the nervous system except meningitis, general diseases, and diseases of the digestive system except diarrhea.

At 65 years and over the per cents are particularly high for deaths from influenza, miscellaneous causes (including "old age"), diseases of the circulatory system (heart disease, etc.), diseases of the respiratory system except pneumonia, diseases of the nervous system except meningitis, Bright's disease, senile diarrhea, and cancer.

Marital Condition of Decedents.—Exclusive of children under 15, the classification of the 19,946 male decedents in 1913 was: Single, 6,448; married, 8,837; widowed, 2,966; divorced, 290; and unknown, 1,405. The marital condition of the 11,638 females aged 15 and over was: Single, 1,427; married, 5,579; widowed, 4,322; divorced, 150; and unknown, 160.

The per cent distribution was as follows for male and female decedents, respectively: Single, 32.3 and 12.3; married, 44.3 and 47.9; widowed, 14.9 and 37.1; divorced, 1.5 and 1.3; and unknown, 7.0 and 1.4. Male decedents exceed in the per cent single, and females in the per cent widowed, the proportion married being about the same for each sex.

Among men the per cent single was much greater, and the per cent married much less, for the territory north of Tehachapi than for that to the north, similar contrasts appearing among women but in only slight degree. Southern California excels in the proportion of widowers and Northern and Central California in the proportion of widows among decedents.

The per cents single, among both men and women, were above general averages for deaths from typhoid fever, tuberculosis, suicide and other violence.

The proportion married was high among men for cancer, nervous diseases, Bright's disease, digestive ailments, and heart disease, etc., and among women for typhoid fever, tuberculosis, suicide, miscellaneous causes, cancer, digestive ailments, and Bright's disease.

In general, the per cents for both widowers and widows were particularly great for heart disease, etc., Bright's disease, nervous diseases, and respiratory troubles.

Occupations and Causes of Death.—Of the decedents aged 15 years and over for whom occupations were reported, totaling 18,231 in 1913, and 17,415 in 1912, the males numbered 17,045 and 16,391 while the females were only 1,186 and 1,024, respectively, the per cents male being 93.5 and 94.1 and female merely 6.5 and 5.9.

The per cents of deaths from typhoid fever were notably high among men in the following specific occupations: Engineers and surveyors, sailors and pilots, barbers and hairdressers, lumbermen and raftsmen, common laborers, draymen, stock raisers, hotel and boarding-house keepers, iron and steel workers, steam railroad employees, farmers, and merchants. The proportions were also high among women workers for nurses, clerks, and school teachers.

Tuberculosis caused relatively more deaths among both men and women workers than among men without occupation or women with only home duties. The per cents of deaths from tuberculosis were particularly high for the following occupations of men: Plumbers, clerks, waiters, tailors, musicians, barbers, hucksters, common laborers, butchers, iron and steel workers, engineers and surveyors, bakers, draymen, saloonkeepers, painters, printers, machinists, and steam railroad employees. The proportions of deaths from tuberculosis were also relatively high for clerks, teachers and servants among women wage earners. On the other hand, the proportions of deaths from tuberculosis were very low indeed for policemen, bankers, merchants, lawyers, physicians, boot and shoemakers, hostlers, lumbermen, farmers, soldiers, and stock raisers.

Miscellaneous violence, like tuberculosis, caused relatively more deaths among both men and women reporting gainful occupations than among those without wage-earning employments. The per cents of deaths from accidents were especially high among men in the following occupations: Lumbermen, railroad employees, hucksters, engineers and surveyors, draymen, common laborers, machinists, stationary engineers, iron and steel workers, sailors, plumbers, and miners. The proportions of deaths from violence on the other hand, were remarkably small among lawyers, physicians, clergymen, merchants, pharmacists, tailors, hotel and boarding-house keepers, boot and shoe makers, brick masons, clerks, cabinetmakers, printers, and musicians.

The statistics show varying relations between occupations and causes of deaths for persons in different occupations dying from cancer, diseases of the circulatory system, Bright's disease, diseases of the nervous, respiratory and digestive systems, and from suicide.

CAUSES OF DEATH.

The State.—Table 1, on pages 88–89, gives the number of deaths in California from certain principal causes, as well as the proportion per 1,000 total deaths and also the death rate per 100,000 estimated midyear population for each year in the five-year period just ended. The table also presents annual average proportions and rates for the five years, 1909 to 1913.

Table 1 shows that diseases of the circulatory system, heart disease, etc., constitute the principal group of causes of death in California. Diseases of the circulatory system caused 16.3 per cent of all deaths in 1913 and 17.4 per cent in 1912, against the annual average of 16.3 for 1909 to 1913. The death rates per 100,000 population for this class of diseases were 235.1 and 247.2 in 1913 and 1912, respectively, as compared with the annual average of 226.3 for the five years just ended.

TABLE 1.—Deaths from Certain Principal Causes, with Proportion per 1,000

Cause of death	Deaths					Annual average: 1909 to 1913
	1913	1912	1911	1910	1909	
ALL CAUSES.....	38,569	36,709	34,012	32,398	30,965	1,000.0
Typhoid fever.....	436	454	444	477	461	13.3
Malarial fever.....	77	101	121	113	112	3.1
Smallpox.....	15	16	9	1	6	0.3
Measles.....	154	134	84	199	119	4.0
Scarlet fever.....	85	34	81	69	69	2.0
Whooping cough.....	128	193	177	307	217	6.1
Diphtheria and croup.....	186	158	167	218	248	5.7
Influenza.....	220	146	125	73	82	3.7
Plague.....	2		1	1	1	.
Other epidemic diseases.....	180	186	169	204	108	4.9
Tuberculosis of lungs.....	4,536	4,316	4,353	4,161	4,061	124.5
Tuberculosis of other organs.....	866	812	761	711	612	21.7
Cancer.....	2,565	2,306	2,029	1,884	1,945	62.6
Other general diseases.....	1,733	1,621	1,538	1,357	1,177	42.8
Meningitis.....	405	308	381	369	398	10.9
Other diseases of nervous system.....	3,315	2,959	2,796	2,632	2,479	82.0
Diseases of circulatory system.....	6,281	6,376	5,516	5,087	4,966	163.2
Pneumonia and broncho-pneumonia.....	2,938	2,968	2,672	2,438	2,081	75.6
Other diseases of respiratory system.....	868	872	802	775	842	24.2
Diarrhea and enteritis, under 2 years.....	1,270	1,056	1,016	1,029	966	30.9
Diarrhea and enteritis, 2 years and over.....	369	359	307	283	270	9.1
Other diseases of digestive system.....	1,965	1,980	1,766	1,633	1,596	51.9
Bright's disease and nephritis.....	2,392	2,185	2,185	2,034	1,858	61.7
Childbirth.....	395	363	355	306	300	9.9
Diseases of early infancy.....	1,444	1,369	1,166	1,129	998	35.2
Suicide.....	837	803	752	706	702	22.0
Other violence.....	3,133	2,962	2,686	2,486	2,563	80.0
All other causes.....	1,774	1,682	1,553	1,616	1,748	48.7

Total Deaths and Death Rate per 100,000 Population, for California: 1909 to 1913.

Proportion per 1,000 total deaths					Death rate per 100,000 population					
1913	1912	1911	1910	1909	Annual average: 1909 to 1913	1913	1912	1911	1910	1909
						2,671,491	2,579,874	2,488,256	2,396,639	2,306,001
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,386.0	1,444.8	1,422.9	1,366.9	1,351.8	1,343.7
11.3	12.4	13.0	14.7	14.9	18.3	16.3	17.6	17.8	19.9	20.0
2.0	2.7	3.5	3.5	3.6	4.3	2.9	3.9	4.9	4.7	4.9
0.4	0.4	0.3	*	0.2	0.4	0.6	0.6	0.4	0.1	0.3
4.0	3.6	2.5	6.2	3.8	5.6	5.8	5.2	3.4	8.3	5.2
2.2	0.9	2.4	2.1	2.2	2.7	3.2	1.3	3.3	2.9	3.0
3.3	5.3	5.2	9.5	7.0	8.3	4.8	7.5	7.1	12.8	9.4
4.8	4.3	4.9	6.7	8.0	7.9	7.0	6.1	6.7	9.1	10.8
5.7	4.0	3.7	2.3	2.6	5.1	8.2	5.6	5.0	3.1	3.6
*		*	*	*	0.1	0.1		0.1	0.1	0.1
4.7	5.1	5.0	6.3	3.5	6.8	6.7	7.2	6.8	8.5	4.7
117.5	117.6	128.0	128.4	131.0	172.3	169.8	167.3	174.9	173.6	176.1
22.4	22.1	22.4	21.9	19.8	30.1	32.4	31.5	30.6	29.7	26.5
66.4	62.8	53.6	61.2	62.8	83.8	96.0	89.4	81.5	82.8	84.3
44.9	44.2	45.2	41.9	38.0	59.4	64.9	62.8	61.8	56.6	51.0
10.5	8.4	11.2	11.4	12.8	15.0	15.1	11.9	15.3	15.4	17.3
85.9	80.6	82.2	81.2	80.0	113.7	124.1	114.7	112.4	109.8	107.5
162.7	173.7	162.2	157.0	160.3	226.3	235.1	247.2	221.7	212.2	215.3
76.1	80.9	78.6	75.3	67.2	104.9	110.0	115.1	107.4	101.7	90.2
22.5	23.7	23.6	23.9	27.2	33.5	32.5	33.8	32.2	32.3	36.5
32.9	28.8	29.9	31.8	31.2	42.8	47.5	40.9	40.8	42.9	41.9
9.6	9.8	9.0	8.7	8.7	12.7	13.8	13.9	12.3	11.8	11.7
51.7	53.9	51.9	50.4	51.5	72.0	74.7	76.8	71.0	68.1	69.2
62.0	59.5	64.2	62.8	60.0	85.5	89.5	84.7	87.8	84.9	80.6
10.2	9.9	10.4	9.5	9.7	13.8	14.8	14.1	14.3	12.8	13.0
37.4	37.3	34.3	34.9	32.2	48.9	54.0	53.1	46.9	47.1	43.3
21.7	21.9	22.1	21.8	22.7	30.5	31.3	31.1	30.2	29.5	30.4
81.2	80.4	79.0	76.7	82.7	110.9	117.3	114.4	107.9	103.7	111.1
46.0	45.8	45.7	49.0	56.4	67.4	66.4	65.2	62.4	67.4	75.8

*Less than one tenth of 1 per thousand.

Tuberculosis, however, is the leading single cause of death in California. Each year about one seventh of all deaths in the State were due to this disease, the per cent being 14.0 for both 1913 and 1912 against the average of 14.6 for 1909 to 1913. In 1913, as in 1912 also, 11.8 per cent of all deaths in California were from tuberculosis of the lungs and 2.2 per cent from tuberculosis of other organs, the averages for 1909 to 1913 being 12.4 and 2.2. The death rate per 100,000 population for all forms of tuberculosis was 202.2 in 1913 and 198.8 in 1912 against the average of 202.4 for the last five years.

Next after diseases of the circulatory system and various forms of tuberculosis taken together come diseases of the respiratory system, pneumonia, etc. Diseases of this class caused 9.9 per cent of all deaths in 1913 and 10.5 per cent in 1912 as compared with the average of 10.0 for 1909 to 1913. Pneumonia and broncho-pneumonia caused 7.6 per cent of all deaths in 1913 and 8.1 per cent in 1912, while other diseases of the respiratory system caused 2.3 and 2.4 per cent, respectively. The death rate per 100,000 population for all diseases of the respiratory system was 142.5 in 1913 and 148.9 in 1912 against the average of 138.4 for 1909 to 1913.

For meningitis and other diseases of the nervous system in 1913 and 1912, respectively, the per cents of all deaths were 9.6 and 8.9 against the five-year average of 9.3, while the death rates per 100,000 population were 139.2 and 126.6 against the average of 128.7. Meningitis alone caused 1.1 per cent of all deaths in 1913 and 0.8 per cent in 1912.

Diseases of the digestive system (diarrhea and enteritis, etc.) caused 9.4 per cent of all deaths in 1913 and 9.3 per cent in 1912 against the average of 9.2, and showed death rates of 136.0 and 131.6 in 1913 and 1912 as compared with the average of 127.5 for 1909 to 1913. The deaths from diarrhea and enteritis among children under 2 years of age were 3.3 per cent of the total deaths at all ages in 1913 and 2.9 per cent in 1912.

Violence other than suicide caused 8.1 per cent of all deaths in 1913 and 8.0 per cent in 1912 against the average of 8.0, while suicides alone caused 2.2 per cent of all deaths each year as well as for the whole five-year period.

Cancers of various kinds caused 6.6 per cent of all deaths in 1913 and 6.3 per cent in 1912 as compared with the average of 6.3, while Bright's disease and nephritis caused 6.2 per cent of all deaths in 1913 and 6.0 per cent in 1912 against the average of 6.2.

Of the epidemic diseases, typhoid fever was by far the most fatal each year, the deaths therefrom in 1913 and 1912 numbering 436 and 454 and the per cents being 1.1 and 1.2 against the average of 1.3 for 1909 to 1913. In 1913 and 1912, respectively, the deaths from whooping-cough numbered 128 and 193 with per cents of 0.3 and 0.5 against the five-year average of 0.6; the deaths from diphtheria and croup totaled 186 and 158 with per cents of 0.5 and 0.4 against the average of 0.6; and the deaths from measles numbered 154 and 134 with a per cent of 0.4

each year against the average of 0.4. Deaths reported from influenza numbered 220 in 1913 and 146 in 1912 (or considerably more for the last two than for earlier years), the per cents being 0.6 and 0.4, respectively, as compared with the average of only 0.4 for 1909 to 1913.

Fewer deaths were reported in 1913 than in 1912 both for typhoid fever and whooping-cough, though somewhat more were reported in 1913 than in 1912 for diphtheria and croup as well as measles.

For typhoid fever, in fact, the death total decreased quite steadily in general throughout the whole eight years last past as follows: 657 (1906), 558, 540, 461, 477, 444, 454, and 436 (1913). The per cent of total deaths from typhoid fever was only 1.1 in 1913 and 1.2 in 1912 against the annual average of 1.3 for 1909 to 1913. Similarly, the death rate per 100,000 population for typhoid fever was merely 16.3 in 1913 and 17.6 in 1912 as compared with 18.3 for the five-year period just ended.

Deaths from other epidemic diseases occurred as follows in 1913 and 1912, respectively: Malarial fever, 77 and 101; scarlet fever, 85 and 34; and smallpox, 15 and 16. Two deaths from plague were reported for 1913, but none for 1912.

Main Geographic Divisions.—Table 2, which follows, gives for the three main geographic divisions in 1913 and 1912 the number of deaths from certain principal causes, as well as the proportion from each cause per 1,000 total deaths. The death rates per 100,000 population are not shown for geographic divisions, because of the difficulty of estimating population for different localities with sufficiently equal accuracy to justify the comparison of detailed death rates for individual causes of death.

Table 2 shows that the proportions per 1,000 total deaths for typhoid fever were particularly high for Central California each year, 12.9 and 13.9 in 1913 and 1912 against State averages of 11.3 and 12.4. For 1913 alone, moreover, the proportion for Northern California was slightly above the State average, 12.0 against 11.3.

The proportions for whooping-cough were above the State averages of 3.3 in 1913 and 5.3 in 1912 for Southern California both years, 5.1 and 6.6.

The proportions for diphtheria and croup also exceeded the State averages of 4.8 and 5.3 for Southern California both years, 5.1 and 4.7, as well as for Central California in less degree, 4.9 and 4.5.

The proportions for measles surpassed the State averages of 4.0 and 3.6 only for Southern California in 1913 alone, 6.8, and for Central California in 1912 alone, 5.7.

For Northern California the proportions are particularly high for deaths from violence other than suicide, being no less than 108.5 and 102.3 for this main division against 81.2 and 80.4 for the whole State, as well as for diseases of the nervous system other than meningitis, being 92.8 and 89.4 for this main division against 85.9 and 80.6 for the State in 1913 and 1912, respectively.

Central California excels in the proportions for diseases of the circulatory system (heart disease, etc.), 174.1 and 182.0 against State aver-

ages of 162.7 and 173.7; for cancer, 71.4 and 65.9 against 66.4 and 62.8; and for pneumonia and broncho-pneumonia, 81.8 and 86.3 against 76.1 and 80.9.

Southern California leads decidedly in the proportions for tuberculosis. The proportions per 1,000 total deaths for tuberculosis of the lungs were no less than 147.9 and 150.2 for this main division against only 117.5 and 117.6 for the entire State, and for tuberculosis of other organs were 21.9 and 24.6 for this division against 22.4 and 22.1 for the State.

Minor Geographic Divisions.—Table 3 on the following pages presents similar figures for the eight minor geographic divisions.

TABLE 2.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Main Geographic Divisions:* 1913 and 1912.

Cause of death	The State		Northern California		Central California		Southern California	
	1913	1912	1913	1912	1913	1912	1913	1912
DEATHS.								
ALL CAUSES	38,509	36,709	4,267	4,029	20,302	19,653	14,030	13,027
Typhoid fever	436	454	51	46	263	273	122	135
Malarial fever	77	101	22	30	50	58	5	13
Smallpox	15	16			5	2	10	14
Measles	154	134	10	13	49	112	95	9
Scarlet fever	85	34	5	6	61	11	19	17
Whooping-cough	128	103	13	9	43	96	72	93
Diphtheria and croup	183	158	15	8	99	89	72	61
Influenza	220	146	21	21	97	63	102	62
Plague	2				2			
Other epidemic diseases	180	186	36	30	81	89	63	67
Tuberculosis of lungs	4,533	4,316	409	387	2,052	1,972	2,075	1,957
Tuberculosis of other organs	886	812	56	75	503	416	307	321
Cancer	2,565	2,306	223	206	1,449	1,295	880	805
Other general diseases	1,733	1,621	199	207	935	884	569	530
Meningitis	405	308	40	28	175	166	190	114
Other diseases of nervous system	3,315	2,959	396	360	1,687	1,468	1,232	1,131
Diseases of circulatory system	6,281	6,376	741	733	3,534	3,576	2,006	2,037
Pneumonia and broncho-pneumonia	2,938	2,968	324	314	1,661	1,696	953	956
Other diseases of respiratory system	868	872	91	78	449	483	328	311
Diarrhea and enteritis, under 2 years	1,270	1,056	84	72	661	612	525	372
Diarrhea and enteritis, 2 years and over	369	350	56	40	175	177	138	142
Other diseases of digestive system	1,995	1,980	230	192	1,137	1,163	628	625
Bright's disease and nephritis	2,392	2,185	261	216	1,196	1,066	935	881
Childbirth	395	363	42	35	216	198	137	130
Diseases of early infancy	1,444	1,369	142	132	767	717	535	520
Suicide	837	803	85	97	500	471	252	235
Other violence	3,133	2,952	463	412	1,595	1,607	1,075	933
All other causes	1,774	1,682	249	252	860	867	665	563
PROPORTION PER 1,000 TOTAL DEATHS.								
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	11.3	12.4	12.0	11.4	12.9	13.9	8.7	10.4
Malarial fever	2.0	2.7	5.2	7.4	2.5	2.9	0.4	1.0
Smallpox	0.4	0.4			0.2	0.1	0.7	1.1
Measles	4.0	3.6	2.3	3.2	2.4	5.7	6.8	0.7
Scarlet fever	2.2	0.9	1.2	1.5	3.0	0.6	1.4	1.3
Whooping-cough	3.3	5.3	3.0	2.2	2.1	5.0	5.1	6.6
Diphtheria and croup	4.8	4.3	3.5	2.0	4.9	4.5	5.1	4.7
Influenza	5.7	4.0	4.9	5.2	4.8	3.2	7.3	4.8
Plague	†				0.1			
Other epidemic diseases	4.7	5.1	8.4	7.4	4.0	4.5	4.5	5.1
Tuberculosis of lungs	117.5	117.6	95.9	96.1	101.1	100.3	147.9	150.2
Tuberculosis of other organs	22.4	22.1	13.1	18.6	24.8	21.2	21.9	24.6
Cancer	66.4	62.8	53.9	51.1	71.4	65.9	63.4	61.8
Other general diseases	44.9	44.2	46.6	51.4	46.0	45.0	42.7	40.7
Meningitis	10.5	8.4	9.4	6.9	8.6	8.4	13.5	8.7
Other diseases of nervous system	85.9	80.6	92.8	89.4	83.1	74.7	87.8	86.8
Diseases of circulatory system	162.7	173.7	173.7	189.4	174.1	182.0	143.0	156.4
Pneumonia and broncho-pneumonia	76.1	89.9	75.9	77.9	81.8	86.3	67.9	73.4
Other diseases of respiratory system	22.5	23.7	21.3	19.4	22.1	24.6	23.4	23.9
Diarrhea and enteritis, under 2 years	32.9	28.8	19.7	17.9	32.6	31.1	37.4	28.6
Diarrhea and enteritis, 2 years and over	9.6	9.8	13.1	9.9	8.6	9.0	9.8	10.9
Other diseases of digestive system	51.7	53.9	53.9	47.7	56.0	59.2	44.8	48.0
Bright's disease and nephritis	62.0	59.5	61.2	53.6	58.9	55.4	66.6	67.6
Childbirth	10.2	9.9	9.8	8.7	10.6	10.1	9.8	10.0
Diseases of early infancy	37.4	37.3	33.3	32.8	37.8	35.5	38.1	39.9
Suicide	21.7	21.9	19.9	24.1	24.6	24.0	18.0	18.0
Other violence	81.2	80.4	108.5	102.3	78.6	81.8	76.6	71.6
All other causes	46.0	45.8	58.4	62.5	42.4	44.1	47.4	43.2

*For list of counties included in geographic divisions, see page 26.
†Less than one tenth of 1 per thousand.

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 1.—Deaths from Certain Principal Causes, with Proportion

Cause of death	1911	Deaths					
		North California		Central California			
		San Francisco	San Diego	San Francisco	Other counties	Coast counties	Interior counties
1911.							
ALL CAUSES	2,380	2,287	2,080	7,002	4,002	2,431	6,397
Typhoid fever	10	10	30	71	40	23	130
Malarial fever	1	1	30	6	5	1	38
Smallpox	1	1	1	1	1	1	1
Measles	12	12	20	9	4	8	29
Scarlet fever	1	1	4	16	4	1	41
Whooping cough	1	1	6	17	4	6	14
Diphtheria and croup	1	1	9	19	31	5	34
Influenza	1	1	12	11	14	21	51
Plague	1	1	1	1	1	1	1
Other epidemic diseases	1	1	1	1	1	1	1
Tuberculosis of lungs	1	1	1	1	1	1	1
Tuberculosis of other organs	1	1	1	1	1	1	1
Cancer	1	1	1	1	1	1	1
Other general diseases	1	1	1	1	1	1	1
Meningitis	1	1	1	1	1	1	1
Other diseases of nervous system	1	1	1	1	1	1	1
Diseases of circulatory system	1	1	1	1	1	1	1
Pneumonia and bronchopneumonia	1	1	1	1	1	1	1
Other diseases of respiratory system	1	1	1	1	1	1	1
Diarrhea and enteritis, under 5 years	1	1	1	1	1	1	1
Diarrhea and enteritis, 5 years and over	1	1	1	1	1	1	1
Other diseases of digestive system	1	1	1	1	1	1	1
Breast disease and reports	1	1	1	1	1	1	1
Childbirth	1	1	1	1	1	1	1
Diseases of early infancy	1	1	1	1	1	1	1
Stroke	1	1	1	1	1	1	1
Other violence	1	1	1	1	1	1	1
All other causes	1	1	1	1	1	1	1
1912.							
ALL CAUSES	2,380	2,287	2,080	7,002	4,002	2,431	6,397
Typhoid fever	10	10	30	71	40	23	130
Malarial fever	1	1	30	6	5	1	38
Smallpox	1	1	1	1	1	1	1
Measles	12	12	20	9	4	8	29
Scarlet fever	1	1	4	16	4	1	41
Whooping cough	1	1	6	17	4	6	14
Diphtheria and croup	1	1	9	19	31	5	34
Influenza	1	1	12	11	14	21	51
Other epidemic diseases	1	1	1	1	1	1	1
Tuberculosis of lungs	1	1	1	1	1	1	1
Tuberculosis of other organs	1	1	1	1	1	1	1
Cancer	1	1	1	1	1	1	1
Other general diseases	1	1	1	1	1	1	1
Meningitis	1	1	1	1	1	1	1
Other diseases of nervous system	1	1	1	1	1	1	1
Diseases of circulatory system	1	1	1	1	1	1	1
Pneumonia and bronchopneumonia	1	1	1	1	1	1	1
Other diseases of respiratory system	1	1	1	1	1	1	1
Diarrhea and enteritis, under 5 years	1	1	1	1	1	1	1
Diarrhea and enteritis, 5 years and over	1	1	1	1	1	1	1
Other diseases of digestive system	1	1	1	1	1	1	1
Breast disease and reports	1	1	1	1	1	1	1
Childbirth	1	1	1	1	1	1	1
Diseases of early infancy	1	1	1	1	1	1	1
Stroke	1	1	1	1	1	1	1
Other violence	1	1	1	1	1	1	1
All other causes	1	1	1	1	1	1	1

per 1,000 Total Deaths, for Minor Geographic Divisions: 1913 and 1912.

Proportion per 1,000 total deaths										
Southern California		The State	Northern California		Central California				Southern California	
Los Angeles	Other counties		Coast counties	Interior counties	San Francisco	Other bay counties	Coast counties	Interior counties	Los Angeles	Other counties
9,705	4,325	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
67	55	11.3	9.6	14.4	10.1	10.6	9.5	19.2	6.9	12.7
5		2.0	0.9	9.6	0.9	1.1	0.4	6.1	0.5	
	10	0.4				0.9		0.2		2.3
73	22	4.0		4.8	1.1	0.9	3.3	4.6	7.5	5.1
18	1	2.2	0.5	1.9	2.3	0.9		6.5	1.9	0.2
47	25	8.3	3.2	2.0	2.4	0.9	3.3	2.2	4.8	5.8
57	15	4.8	2.7	4.3	4.1	6.7	2.1	5.4	5.9	3.5
71	31	5.7	4.1	5.8	1.6	3.0	8.6	8.1	7.3	7.2
						0.2	0.4			
44	19	4.7	8.2	8.7	3.6	2.2	4.1	5.7	4.5	4.4
1,446	629	117.5	101.0	90.4	97.8	91.5	101.6	111.5	149.0	143.4
190	117	22.4	15.5	10.6	27.9	20.6	26.3	23.8	19.6	27.0
647	243	66.4	58.5	47.1	81.8	79.3	67.5	59.4	66.7	56.2
427	172	44.9	40.7	52.9	50.7	45.8	39.5	43.6	44.0	39.8
146	44	10.5	11.4	7.2	8.0	7.6	6.6	10.9	15.0	10.2
906	424	85.9	105.2	79.8	69.1	89.3	121.8	79.1	83.3	96.0
1,472	534	162.7	191.6	154.8	206.1	184.7	192.5	123.3	151.7	123.5
674	279	76.1	77.7	74.0	85.6	89.9	67.9	77.1	69.4	64.5
223	105	22.5	23.8	18.8	21.9	23.5	28.7	19.6	23.0	24.3
301	224	32.9	16.9	22.6	20.4	33.0	33.3	45.5	31.0	51.8
82	56	9.6	11.9	14.4	6.6	6.3	13.6	10.7	8.4	12.9
452	176	51.7	57.2	50.5	62.3	50.0	44.4	57.9	46.6	40.7
688	247	62.0	60.8	61.5	60.8	61.9	55.9	55.7	70.9	57.1
99	38	10.2	7.8	12.0	10.6	9.6	9.5	12.0	10.2	8.8
357	178	37.4	28.4	38.5	27.8	41.1	30.8	49.1	36.8	41.1
176	76	21.7	17.4	22.6	31.4	27.2	15.6	18.7	18.1	17.6
655	420	81.2	93.3	124.5	64.8	75.2	64.2	102.0	67.5	97.1
480	185	46.0	51.7	65.4	40.3	36.1	50.6	46.1	49.5	42.8
8,890	4,137	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
76	59	12.4	12.1	10.7	8.9	10.5	9.8	23.5	8.5	14.3
7	6	2.7	0.9	14.9	1.8	0.7	0.9	6.7	0.8	1.4
13	1	0.4			0.1	0.2			1.5	0.2
4	5	3.6	2.8	3.7	7.4	2.5	8.6	5.1	0.4	1.2
13	4	0.9	1.8	1.1	0.1	0.2	0.9	1.2	1.5	1.0
60	26	5.3	0.9	3.7	3.7	6.1	3.9	6.1	6.7	6.3
40	21	4.3	1.4	2.7	4.6	6.0	1.3	4.6	4.5	5.1
44	18	4.0	2.3	8.5	1.2	1.3	4.3	6.4	4.9	4.3
49	18	5.1	9.3	5.3	3.2	2.9	3.9	7.4	5.5	4.3
1,344	613	117.6	102.5	88.6	100.2	101.8	90.0	103.4	151.2	148.2
233	88	22.1	18.6	18.7	25.7	18.8	23.2	17.1	26.2	21.3
507	208	62.8	54.3	47.5	73.9	73.6	62.2	52.8	67.2	50.3
374	156	44.2	45.5	58.2	49.5	41.8	42.9	43.1	42.1	37.7
67	47	8.4	6.5	7.5	7.7	9.6	5.6	9.5	7.5	11.4
736	395	80.6	115.1	59.8	66.2	84.6	99.0	67.5	82.8	95.5
1,428	609	173.7	195.4	182.5	204.6	189.0	197.7	145.6	160.6	147.2
679	277	80.9	77.9	77.9	80.3	92.4	84.9	89.4	76.4	66.9
209	102	23.7	17.2	21.9	25.7	23.3	29.2	22.5	23.5	24.6
213	159	28.8	13.9	22.4	28.4	27.1	26.6	38.9	24.0	38.4
83	59	9.8	8.3	11.7	5.5	8.7	9.0	13.1	9.3	14.3
427	198	53.9	48.3	47.0	67.4	54.6	54.4	55.2	48.0	47.9
631	250	59.3	59.9	46.4	54.8	53.7	60.4	55.2	71.0	60.4
94	36	9.9	6.0	11.7	7.4	10.7	9.8	12.7	10.6	8.7
336	184	37.3	30.2	35.8	34.9	43.0	30.0	36.0	37.8	44.5
173	62	21.9	20.9	27.7	30.0	24.2	19.3	18.9	19.5	15.0
569	304	80.4	94.2	111.5	64.1	75.6	69.9	110.4	64.0	88.0
391	172	45.8	53.8	72.6	42.7	37.1	52.3	47.7	44.0	41.6

From the proportions per 1,000 total deaths shown for minor geographic divisions it appears that the high proportions for typhoid fever noted for Central California each year and for Northern California in 1913 were practically confined to the interior counties. The proportions for typhoid fever were relatively high each year for the interior counties of both Central and Northern California and for the counties of Southern California other than Los Angeles, as well as for the coast counties of Northern California in 1912 alone. As compared with State averages of 11.3 and 12.4 in 1913 and 1912, respectively, the proportions per 1,000 total deaths were no less than 19.2 and 23.5 for the interior counties of Central California; 14.4 and 10.7 for the interior counties of Northern California; 12.7 and 14.3 for Southern California except Los Angeles, and 12.1 for the coast counties of Northern California in 1912 alone.

The proportions of whooping-cough were above the State averages of 3.3 and 5.3 both years for Los Angeles, 4.8 and 6.7, and for the other counties of Southern California, 5.8 and 6.3, as well as in 1912 alone for the other bay counties and the interior counties of Central California, 6.1 in each case.

The proportion for diphtheria and croup was above the State average of 4.8 in 1913 for the bay counties other than San Francisco, 6.7; for the interior counties of Central California, 5.4; and for Los Angeles, 5.9. The proportion was above the average of 4.3 for 1912 for San Francisco, 4.6; the other bay counties, 6.0; the interior counties of Central California, 4.6; Los Angeles, 4.5; and the other counties of Southern California, 5.1.

The proportion for measles was above the general average of 4.0 in 1913 for the interior counties of Northern California, 4.8; the interior counties of Central California, 4.6; Los Angeles, 7.5; and the other counties of Southern California, 5.1. The proportion was above the average of 3.6 in 1912 for the interior counties of Northern California, 3.7; San Francisco, 7.4; the coast counties of Central California, 8.6; and the interior counties of Central California, 5.1.

The coast counties of Northern California have very high proportions for diseases of the nervous system other than meningitis, 105.2 and 115.1 in 1913 and 1912 against State averages of only 85.9 and 80.6. This is accounted for by the fact that many of the deaths reported for this geographic division occurred at the Mendocino and Napa State Hospitals. The proportions for diseases of the nervous system are also quite high for the coast counties of Central California, 121.8 and 99.0, and for the counties south of Tehachapi except Los Angeles, 98.0 and 95.5, the former division including the Agnews State Hospital and the latter the Southern California State Hospital.

The interior counties of Northern California show proportions that are very high indeed, 124.5 and 111.5 against State averages of only 81.2 and 80.4, for miscellaneous deaths from violence, as drowning, railroad injuries, other accidents, etc.

The proportions for diseases of the circulatory system (162.7 and 173.7 for the State in 1913 and 1912) are particularly high for San Francisco (206.1 and 204.6), for the other bay counties (184.7 and 189.0), for the adjoining coast counties of Central California (192.5 and 197.7), and for the coast counties of Northern California (191.6

The proportions for pneumonia and broncho-pneumonia (76.1 for the State in 1913 and 80.9 in 1912) are especially high for San Francisco (85.6 and 80.3) and the other bay counties (89.9 and 92.4), as well as for the interior counties of Central California (77.1 and 89.4).

The proportions of total deaths at all ages for diarrhea and enteritis among children under 2 years of age, 32.9 in 1913 and 28.8 in 1912 for the State, were notably high for the interior counties of Central California, 45.5 and 38.9, and for Southern California outside Los Angeles, 51.8 and 38.4.

In San Francisco the proportions per 1,000 total deaths for cancer were no less than 81.8 in 1913 and 73.9 in 1912 against State averages of 66.4 and 62.8. Similarly, the proportions for suicide were as great as 31.4 and 30.0 for San Francisco as compared with 21.7 and 21.9 for the State as a whole.

The proportions for tuberculosis of the lungs, 117.5 in 1913 and 117.6 in 1912 for the State, were no less than 149.0 and 151.2 for Los Angeles and as great as 145.4 and 148.2 for the other counties south of Tehachapi. Similarly, against State averages of 22.4 and 22.1 for tuberculosis of other organs, the proportions per 1,000 total deaths were 19.6 in 1913 and 26.2 in 1912 for Los Angeles and 27.0 and 21.3, respectively, for the rest of Southern California.

Urban and Rural Districts.—The table which follows has been prepared to bring out the contrast between mortality conditions in urban and rural districts, figures like those in preceding tables being given here for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as compared with the rural counties of Northern and Central California:

TABLE 4.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Metropolitan Area and Rural Counties of Northern and Central California: 1913 and 1912.

Cause of death	Northern and Central California		Metropolitan area		Rural counties	
	1913	1912	1913	1912	1913	1912
DEATHS.						
ALL CAUSES	24,509	23,682	11,604	11,236	12,965	12,446
Typhoid fever.....	314	319	120	107	194	212
Malarial fever.....	72	88	11	15	61	73
Smallpox.....	5	2	4	2	1	-----
Measles.....	59	125	12	61	47	64
Scarlet fever.....	66	17	20	2	46	15
Whooping-cough.....	56	107	21	52	35	55
Diphtheria and croup.....	114	97	60	58	54	39
Influenza.....	118	84	25	14	98	70
Plague.....	2	-----	1	-----	1	-----
Other epidemic diseases.....	117	119	35	35	82	84
Tuberculosis of lungs.....	2,461	2,359	1,106	1,133	1,355	1,226
Tuberculosis of other organs.....	559	491	290	258	269	233
Cancer.....	1,675	1,501	988	829	737	672
Other general diseases.....	1,134	1,001	566	522	568	569
Meningitis.....	215	194	91	95	124	99
Other diseases of nervous system.....	2,083	1,828	895	893	1,188	1,002
Diseases of circulatory system.....	4,275	4,339	2,293	2,229	1,982	2,110
Pneumonia and broncho-pneumonia.....	1,985	2,012	1,013	956	972	1,056
Other diseases of respiratory system.....	540	561	261	278	279	283
Diarrhea and enteritis, under 2 years.....	745	684	295	313	450	371
Diarrhea and enteritis, 2 years and over.....	231	217	75	76	156	141
Other diseases of digestive system.....	1,367	1,335	666	700	701	655
Bright's disease and nephritis.....	1,457	1,304	711	611	746	693
Childbirth.....	258	233	118	98	140	135
Diseases of early infancy.....	909	849	384	428	525	421
Suicide.....	585	568	345	311	240	257
Other violence.....	2,068	2,019	800	772	1,258	1,247
All other causes.....	1,109	1,119	448	455	661	564
PROPORTION PER 1,000 TOTAL DEATHS.						
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever.....	12.8	13.5	10.3	9.5	15.0	17.0
Malarial fever.....	2.9	3.7	1.0	1.3	4.7	5.9
Smallpox.....	0.2	0.1	0.4	0.2	0.1	-----
Measles.....	2.4	5.3	1.0	5.4	3.6	5.2
Scarlet fever.....	2.7	0.7	1.7	0.2	3.5	1.2
Whooping-cough.....	2.3	4.5	1.8	4.6	2.7	4.4
Diphtheria and croup.....	4.6	4.1	5.2	5.2	4.2	3.1
Influenza.....	4.8	3.5	2.2	1.2	7.2	5.6
Plague.....	0.1	-----	0.1	-----	0.1	-----
Other epidemic diseases.....	4.8	5.0	3.0	3.1	6.3	6.8
Tuberculosis of lungs.....	100.2	99.6	95.3	100.8	104.5	98.5
Tuberculosis of other organs.....	22.7	20.7	25.0	23.0	20.8	18.7
Cancer.....	68.2	63.4	80.8	73.8	56.8	54.0
Other general diseases.....	45.2	46.1	48.8	46.5	43.8	45.7
Meningitis.....	8.7	8.2	7.8	8.4	9.6	8.0
Other diseases of nervous system.....	84.8	77.2	77.1	73.5	91.6	80.5
Diseases of circulatory system.....	174.0	183.2	197.6	198.4	152.9	169.5
Pneumonia and broncho-pneumonia.....	80.8	85.0	87.3	85.1	75.0	84.9
Other diseases of respiratory system.....	22.0	23.7	22.5	24.7	21.5	22.8
Diarrhea and enteritis, under 2 years.....	30.3	28.9	25.4	27.9	34.7	29.8
Diarrhea and enteritis, 2 years and over.....	9.4	9.2	6.5	6.8	12.0	11.3
Other diseases of digestive system.....	55.6	57.2	57.4	62.3	54.1	52.6
Bright's disease and nephritis.....	59.3	55.1	61.3	54.4	57.5	55.7
Childbirth.....	10.5	9.8	10.2	8.7	10.8	10.9
Diseases of early infancy.....	37.0	35.8	33.1	38.1	40.5	33.8
Suicide.....	23.8	24.0	29.7	27.7	18.5	20.7
Other violence.....	83.8	85.3	68.9	68.7	97.0	100.0
All other causes.....	45.1	47.2	38.6	40.5	51.0	53.4

There were not far from the same number of deaths each year in the metropolitan area as in all the other counties north of Tehachapi, the totals being respectively, 11,604 and 12,965 in 1913, and 11,236 and 12,446 in 1912. However, there are marked differences between the whole urban area and the rural districts in the distribution of deaths by main causes.

The proportion per 1,000 total deaths for typhoid fever was only 10.3 in 1913 and 9.5 in 1912 for the metropolitan area as compared with 15.0 and 17.0 for the rural counties. Similarly, the proportions for malarial fever were only 1.0 and 1.3 for the urban territory against 4.7 and 5.9 for the country districts. The proportions for scarlet fever were likewise only 1.7 and 0.2 for the urban territory as compared with 3.5 and 1.2 for the rural sections.

The proportions for whooping-cough were 1.8 and 4.6 for the metropolitan area against 2.7 and 4.4 for the rural counties, and the proportions for measles were 1.0 and 5.4 for the former against 3.6 and 5.2 for the latter. The proportions for both whooping-cough and measles were much less for the metropolitan area than for the rural counties in 1913, though about the same for each population group in 1912.

However, the proportion for diphtheria and croup was greater in both 1913 and 1912 for the urban territory, 5.2 each year, than for the rural territory, 4.2 and 3.1.

The proportion of deaths from diseases of the circulatory system (heart disease, etc.) is very much higher for the urban territory than for the country districts, the proportions per 1,000 total deaths for the former in 1913 and 1912 being as great as 197.6 and 198.4 against only 152.9 and 169.5 for the latter. The proportions for Bright's disease and nephritis, which often occur with heart disease, were also generally higher for the metropolitan area (61.3 and 54.4) than for the rural counties (57.5 and 55.7).

Other important cases in which the proportions per 1,000 total deaths were higher in both 1913 and 1912 for the urban territory than for the country districts are as follows: Cancer, 80.8 and 73.8 against 56.8 and 54.0; pneumonia and broncho-pneumonia, 87.3 and 85.1 against 75.0 and 84.9; diseases of the digestive system other than diarrhea and enteritis, 57.4 and 62.3 against 54.1 and 52.6; and suicide, 29.7 and 27.7 against 18.5 and 20.7.

On the other hand, the proportions were higher in both 1913 and 1912 for the rural counties than for the metropolitan area in the following notable instances: Diseases of the nervous system other than meningitis, 91.6 and 80.5 as compared with 77.1 and 73.5; diarrhea and enteritis (under 2 years), 34.7 and 29.8 as compared with 25.4 and 27.9; violence other than suicide (*i. e.*, sundry accidents), 97.0 and 100.0 as compared with 68.9 and 68.7; and miscellaneous causes (including "old age"), 51.0 and 53.4 as compared with 38.6 and 40.5.

In short, there are relatively more deaths in the metropolitan area than in the rural counties north of Tehachapi from heart disease, Bright's disease, cancer, pneumonia, digestive ailments (except diarrhea), and suicide, as well as from diphtheria and croup. However, there is a relatively greater mortality in country districts than in

the urban territory from diseases of the nervous system, infantile diarrhea, accidental violence, and "old age," as well as from typhoid fever, malarial fever, and scarlet fever, besides (generally) whooping-cough and measles.

Cities and Rest of State.—A further contrast between mortality conditions in city and country districts is available for 1913 and 1912 by comparing deaths in chartered cities as a class with deaths in all the rest of the State. There were thirty-two freeholders' charter cities in 1913 and thirty-one in 1912, the additional city being San Rafael. Table 5 on the following page shows for 1913 and 1912 the number of deaths from certain principal causes, as well as the proportion from each cause per 1,000 total deaths, for chartered cities as a class and for the rest of the State as a whole.

TABLE 5.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Freeholders' Charter Cities and Rest of State: 1913 and 1912.

Cause of death	California		Freeholders' charter cities		Rest of state	
	1913	1912	1913	1912	1913	1912
DEATHS.						
ALL CAUSES	88,569	36,709	23,519	22,322	15,080	14,387
Typhoid fever.....	436	454	262	242	174	212
Malarial fever.....	77	101	24	30	53	71
Smallpox.....	15	16	5	14	10	2
Measles.....	154	134	78	88	76	46
Scarlet fever.....	85	34	39	13	46	21
Whooping-cough.....	128	193	71	117	57	76
Diphtheria and croup.....	181	158	128	98	58	60
Influenza.....	220	146	103	61	117	85
Plague.....	2	2			2	
Other epidemic diseases.....	180	186	106	93	74	93
Tuberculosis of lungs.....	4,566	4,316	2,663	2,564	1,873	1,762
Tuberculosis of other organs.....	866	812	575	544	291	268
Cancer.....	2,585	2,396	1,772	1,590	793	716
Other general diseases.....	1,733	1,671	1,114	1,008	619	613
Meningitis.....	405	306	239	192	136	116
Other diseases of nervous system.....	3,315	2,959	1,957	1,715	1,359	1,244
Diseases of circulatory system.....	6,281	6,376	4,061	4,309	2,200	2,376
Pneumonia and broncho-pneumonia.....	2,938	2,998	1,832	1,819	1,106	1,149
Other diseases of respiratory system.....	898	872	488	569	380	333
Diarrhea and enteritis, under 2 years.....	1,270	1,056	670	588	600	438
Diarrhea and enteritis, 2 years and over.....	369	350	191	190	178	160
Other diseases of digestive system.....	1,995	1,980	1,307	1,332	688	648
Bright's disease and nephritis.....	2,392	2,185	1,510	1,329	882	856
Childbirth.....	395	363	253	228	142	135
Diseases of early infancy.....	1,441	1,339	856	858	588	511
Suicide.....	837	803	548	543	280	200
Other violence.....	3,133	2,952	1,598	1,537	1,535	1,415
All other causes.....	1,774	1,082	1,020	991	754	691
PROPORTION PER 1,000 TOTAL DEATHS.						
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever.....	11.3	12.4	11.1	10.8	11.5	14.7
Malarial fever.....	2.0	2.7	1.0	1.4	3.5	4.9
Smallpox.....	0.4	0.4	0.2	0.6	0.7	0.1
Measles.....	4.0	3.6	3.3	3.9	5.0	3.2
Scarlet fever.....	2.2	0.9	1.7	0.6	3.1	1.5
Whooping-cough.....	3.3	5.3	3.0	5.2	3.8	5.3
Diphtheria and croup.....	4.8	4.3	5.4	4.4	3.8	4.2
Influenza.....	5.7	4.0	4.4	2.7	7.8	5.9
Plague.....	*				0.1	
Other epidemic diseases.....	4.7	5.1	4.5	4.2	4.9	6.5
Tuberculosis of lungs.....	117.5	117.6	113.2	114.4	124.2	122.5
Tuberculosis of other organs.....	22.4	22.1	24.5	24.4	19.3	18.6
Cancer.....	66.4	62.8	75.3	71.2	52.6	49.8
Other general diseases.....	44.9	44.2	47.4	45.2	41.1	42.6
Meningitis.....	10.5	8.4	11.4	8.6	9.0	8.1
Other diseases of nervous system.....	85.9	80.6	83.2	76.8	90.1	81.5
Diseases of circulatory system.....	162.7	173.7	173.5	179.2	145.9	165.1
Pneumonia and broncho-pneumonia.....	76.1	81.9	77.9	81.5	73.3	79.9
Other diseases of respiratory system.....	22.5	23.7	20.8	24.2	25.2	23.1
Diarrhea and enteritis, under 2 years.....	32.9	28.8	28.5	26.4	39.8	32.5
Diarrhea and enteritis, 2 years and over.....	9.6	9.8	8.1	8.9	11.8	11.1
Other diseases of digestive system.....	51.7	53.9	55.6	59.7	45.6	45.0
Bright's disease and nephritis.....	62.0	59.5	64.2	59.5	58.5	59.5
Childbirth.....	10.2	9.9	10.8	10.2	9.4	9.4
Diseases of early infancy.....	37.4	37.3	36.4	38.4	39.0	35.5
Suicide.....	21.7	21.9	23.3	24.3	19.2	18.1
Other violence.....	81.2	80.4	67.9	68.9	101.8	98.4
All other causes.....	46.0	45.8	43.4	44.4	50.0	48.0

*Less than one tenth of 1 per thousand.

Of the 38,599 deaths in California in 1913, altogether 23,519, or 60.9 per cent, occurred in the thirty-two freeholders' charter cities and 15,080, or 39.1 per cent, occurred in all the rest of the State. Of the 36,709 deaths in 1912, the number within the thirty-one chartered cities was 22,322, or 60.8 per cent, and the number outside these cities was 14,387, or 39.2 per cent. Each year about three fifths of the deaths in California occurred within chartered cities and about two fifths outside them.

The proportion per 1,000 total deaths for typhoid fever was only 11.1 in 1913 and 10.8 in 1912 for chartered cities as a class against 11.5 and 14.7, respectively, for all the rest of the State as a whole. The proportions were also less for chartered cities than for the rest of California for malarial fever, 1.0 and 1.4 against 3.5 and 4.9; for scarlet fever, 1.7 and 0.6 against 3.1 and 1.5; for whooping-cough, 3.0 and 5.2 against 3.8 and 5.3; and (generally) for measles, 3.3 and 3.9 against 5.0 and 3.2.

Relatively more deaths occur within cities than outside them, however, from diseases of the circulatory system (heart disease, etc.). The proportions per 1,000 total deaths in 1913 and 1912, respectively, were 173.5 and 179.2 for chartered cities as compared with 145.9 and 165.1 for the rest of the State. For Bright's disease and nephritis, often reported with heart disease, the proportions were likewise generally higher within chartered cities, 64.2 and 59.5, than outside them, 58.4 and 59.5.

The proportions per 1,000 total deaths were also higher in 1913 as well as 1912 for chartered cities than for the rest of California in the following important cases: Cancer, 75.3 and 71.2 against 52.6 and 49.8; pneumonia and broncho-pneumonia, 77.9 and 81.5 against 73.3 and 79.9; diseases of the digestive system other than diarrhea and enteritis, 55.6 and 59.7 against 45.6 and 45.0; suicide, 23.3 and 24.3 against 19.2 and 18.1; and diphtheria and croup, 5.4 and 4.4 against 3.8 and 4.2.

On the other hand, the proportions were higher in both 1913 and 1912 outside cities than within them in certain notable instances, as follows: Diseases of the nervous system other than meningitis, 90.1 and 86.5 as compared with 83.2 and 76.8; diarrhea and enteritis (under 2 years), 39.8 and 32.5 as compared with 28.5 and 26.4; violence other than suicide (*i. e.*, various accidental injuries), 101.8 and 98.4 as compared with 67.9 and 68.9; and miscellaneous causes (including "old age"), 50.0 and 48.0 as compared with 43.4 and 44.4.

In other words, there are relatively more deaths within chartered cities than outside them from heart disease, Bright's disease, cancer, pneumonia, digestive ailments (except diarrhea), and suicide, besides diphtheria and croup among epidemic diseases. Mortality is relatively greater outside cities than within them, however, from diseases of the nervous system (except meningitis), diarrhea and enteritis (under 2 years), accidental injuries, and "old age," as well as from typhoid fever, malarial fever, scarlet fever, and whooping cough, besides (generally) measles of the epidemic diseases.

Individual Counties.—Preceding figures for deaths in main and minor geographic divisions in 1913 and 1912 are supplemented by extended tables giving similar figures for the fifty-eight counties in both years. The counties are arranged in geographic order, by minor geographic

divisions, but for the sake of ready reference the counties in each group are listed alphabetically. The grouping of the counties according to geographic location facilitates the analysis of mortality conditions in any minor geographic division by immediate reference to the counties included in the group.

These tables, because of their length, are placed with other general tables toward the end of the section on deaths, but for convenience in reference the titles are given here as follows:

TABLE 29.—Deaths from certain principal causes, with proportion per 1,000 total deaths, for counties arranged geographically: 1913.

TABLE 30.—Deaths from certain principal causes, with proportion per 1,000 total deaths, for counties arranged geographically: 1912.

Individual Cities.—Corresponding figures for individual chartered cities appear in Tables 31 and 32, *post*. In these tables the cities are arranged in rough geographic order to facilitate comparisons between neighboring cities or between cities in the same portion of the State.

The tables for individual chartered cities in 1913 and 1912, like similar tables for counties, appear with other general tables toward the close of the section on deaths. However, the titles of these city tables are here given as follows:

TABLE 31.—Deaths from certain principal causes, with proportion per 1,000 total deaths, for freeholders' charter cities arranged geographically: 1913.

TABLE 32.—Deaths from certain principal causes, with proportion per 1,000 total deaths, for freeholders' charter cities arranged geographically: 1912.

TUBERCULOSIS IN CALIFORNIA.

The State.—Tuberculosis is the leading single cause of death in California, being the cause of about one seventh of all deaths. Of 38,599 deaths reported to the State Bureau of Vital Statistics for 1913, altogether 5,402 were from tuberculosis, and of 36,709 deaths reported for 1912, some 5,128 were also from the "great white plague," the per cent being 14.0 each year against the average of 14.6 for the five years last past.

For comparison it may be noted that in 1913 and 1912, respectively, the totals for all diseases of the circulatory system (heart disease, etc.) were 6,281 and 6,376; for diseases of the respiratory system (pneumonia, etc.) were only 3,806 and 3,840; for diseases of the nervous system were only 3,720 and 3,267; and for diseases of the digestive system were only 3,634 and 3,395.

From tuberculosis of the lungs there were 4,536 deaths in 1913 as compared with 4,316 in 1912, while from tuberculosis of other organs there were 866 deaths in 1913 against 812 in 1912. The distribution

of deaths from tuberculosis of the lungs and other organs was as follows for California in 1913 and 1912, respectively:

	1913	1912
Deaths from tuberculosis (all forms).....	5,402	5,128
Tuberculosis of the lungs.....	4,536	4,316
Tuberculosis of other organs.....	866	812
Acute miliary tuberculosis.....	108	130
Tuberculous meningitis.....	323	291
Abdominal tuberculosis.....	234	222
Pott's disease.....	49	42
White swellings.....	21	11
Tuberculosis of other organs.....	70	64
Disseminated tuberculosis.....	61	52

The proportion per 1,000 total deaths in 1913 was 117.5 for tuberculosis of the lungs and 22.4 for tuberculosis of other organs, or 139.9 for all forms of this disease. Of each 1,000 deaths in California in 1912, there were 117.6 from tuberculosis of the lungs and 22.1 from tuberculosis of other organs, or 139.7 from tuberculosis of all forms. For 1909 to 1913, moreover, the annual average proportion per 1,000 total deaths was 124.5 for pulmonary tuberculosis and 21.7 for other forms, or altogether 146.2 for all forms.

For an estimated State population of 2,671,491 in 1913 the death rate per 100,000 population is 169.8 for tuberculosis of the lungs and 32.4 for tuberculosis of other organs, or altogether 202.2 for all forms of this disease. Similarly, for an estimated population of 2,579,874 in 1912 the death rate per 100,000 is 167.3 for pulmonary tuberculosis and 31.5 for other forms, or 198.8 for all kinds. In short, the tuberculosis death rate per 100,000 population was no less than 202.2 in 1913 and 198.8 in 1912, the annual average being as great as 202.4 for the five year period, 1909 to 1913.

The general death rate per 1,000 population was 14.4 for California in 1913 and 14.2 in 1912, the rates being swollen greatly by deaths from tuberculosis. It will be shown that many deaths from tuberculosis in California occur among persons of short residence in the State, who evidently came here when too far gone with the disease to be cured. It is also quite likely that many other cases arising here are directly due to this imported infection.

Geographic Divisions.—Southern California is an especially popular resort for consumptives, and here nearly one fifth of all deaths are due to tuberculosis. The table which appears below shows the number and per cent of deaths from tuberculosis for the several geographic divisions of the State in both 1913 and 1912, together with the annual average per cents for 1909 to 1913 as additional data.

TABLE 6.—Number and Per Cent of Deaths from Tuberculosis, for Geographic Divisions:* 1913 and 1912.

Geographic division	Deaths		Tuberculosis				Annual average per cent: 1909 to 1913
	1913	1912	Number		Per cent		
			1913	1912	1913	1912	
THE STATE	38,569	36,709	5,402	5,128	14.0	14.0	14.6
Northern California	4,267	4,029	465	462	10.9	11.5	11.3
Coast counties	2,187	2,155	255	261	11.7	12.1	11.9
Interior counties	2,080	1,874	210	201	10.1	10.7	10.7
Central California	20,302	19,653	2,555	2,388	12.6	12.2	13.0
San Francisco	7,002	6,766	880	852	12.6	12.6	13.0
Other bay counties	4,602	4,470	516	539	11.2	12.1	12.2
Coast counties	2,431	2,332	311	264	12.8	11.3	13.5
Interior counties	6,267	6,085	848	733	13.5	12.0	13.3
Southern California	14,080	13,027	2,382	2,278	17.0	17.5	18.6
Los Angeles	9,705	8,890	1,636	1,577	16.9	17.7	18.6
Other counties	4,325	4,137	746	701	17.2	16.9	18.5
Northern and Central California	24,569	23,682	3,020	2,850	12.3	12.0	12.6
Coast counties	16,222	15,723	1,962	1,916	12.1	12.2	12.7
Interior counties	8,347	7,959	1,058	934	12.7	11.7	12.6
Metropolitan area	11,604	11,236	1,396	1,391	12.0	12.4	12.6
Rural counties	12,965	12,446	1,624	1,459	12.5	11.7	12.7

*For list of counties included in geographic divisions, see page 26.

Table 6 shows that for Southern California the per cent of total deaths from tuberculosis was 17.0 in 1913 and 17.5 in 1912 against the annual average of 18.6 for 1909 to 1913. Thus nearly one fifth of all deaths are due to tuberculosis in Los Angeles and the other counties south of Tehachapi, the annual average per cent for the five years last past being practically the same (18.6 against 18.5) for Los Angeles alone as for all the rest of Southern California.

North of Tehachapi, however, only about one eighth of all deaths are from tuberculosis, the per cents for Northern and Central California together being 12.3 in 1913 and 12.0 in 1912 against the average of 12.6 for 1909 to 1913. The annual average per cent in the five year period just ended was 13.0 for Central California and only 11.3 for Northern California, the prevalence of tuberculosis decreasing toward the north. The per cent was below the State figure for both 1913 and 1912, as well as below the average for all California in 1909 to 1913, for every main and minor geographic division north of Tehachapi, the interior counties of Northern California showing the minimum per cents, 10.1 in 1913 and 10.7 in 1912, as well as the lowest average, 10.7, for the five years last past.

The per cent of deaths from tuberculosis is virtually the same for the metropolitan area as for the rural counties north of Tehachapi, the annual average in 1909 to 1913 being 12.6 for the former against 12.7 for the latter. Within the metropolitan area, however, the annual average per cent is somewhat greater for San Francisco, 13.0, than for the other bay counties, 12.2.

Cities.—The following table gives the number and per cent of deaths from tuberculosis in 1913 and 1912, and in addition the annual average

per cents for 1909 to 1913, for chartered cities in contrast with the rest of the State, as well as for the individual cities:

TABLE 7.—Number and Per Cent of Deaths from Tuberculosis, for Individual Cities and Rest of State: 1913 and 1912.

City	Deaths		Tuberculosis				Annual average per cent 1909 to 1913
	1913	1912	Number		Per cent		
			1913	1912	1913	1912	
CALIFORNIA	38,599	36,709	5,402	5,128	14.0	14.0	14.6
Freeholders' charter cities.....	23,519	22,322	3,238	3,098	13.8	13.9	14.3
<i>Northern California</i>							
Eureka	256	217	25	32	9.8	14.7	12.3
Napa	117	92	17	13	14.5	14.1	12.0
Petaluma	85	90	6	10	7.1	11.1	7.9
Santa Rosa	146	140	13	12	8.9	8.6	12.2
Grass Valley	71	62	8	11	11.3	17.7	14.9
<i>Central California</i>							
San Francisco	7,002	6,766	880	852	12.6	12.6	13.0
Alameda	290	325	32	25	11.0	7.7	9.9
Berkeley	456	439	37	42	8.1	9.6	9.3
Oakland	2,197	2,139	228	232	10.4	10.8	11.2
Richmond	159	135	11	11	6.9	8.1	8.2
San Rafael	92		13		14.1		*14.1
Monterey	67	66	9	9	13.4	13.6	\$14.6
Salinas	74	57	7	4	9.5	7.0	10.1
San Luis Obispo	101	108	16	17	15.8	15.7	†15.8
Palo Alto	31	43	2	2	6.5	4.7	10.0
San Jose	452	472	59	61	13.1	12.9	14.2
Santa Cruz	174	182	25	10	14.4	5.5	10.7
Watsonville	90	93	13	12	14.4	12.9	14.5
Fresno	420	383	43	34	10.2	8.9	11.3
Sacramento	1,108	1,032	164	130	14.8	12.6	13.5
Stockton	400	598	75	95	16.3	16.2	16.9
Vallejo	170	136	14	14	8.2	10.3	10.5
Modesto	165	127	16	13	9.7	10.2	†10.0
<i>Southern California</i>							
Los Angeles	6,198	5,665	1,061	979	17.1	17.3	18.1
Long Beach	482	324	29	29	6.0	9.0	8.8
Pasadena	470	534	65	105	13.8	19.7	20.4
Pomona	155	152	21	19	13.5	12.5	†12.8
Santa Monica	176	168	14	11	8.0	6.5	9.4
Riverside	231	270	42	53	18.2	19.6	21.1
San Bernardino	323	298	91	64	28.2	21.5	26.7
San Diego	1,073	967	174	158	16.2	16.0	16.3
Santa Barbara	228	234	28	39	12.3	16.7	14.0
Rest of State.....	15,080	14,387	2,164	2,030	14.4	14.1	14.1

*Per cent for single year, 1913. †Average for two years, 1912 and 1913. §Average for three years, 1911 to 1913.

In the thirty-two freeholders' charter cities in 1913 the deaths from tuberculosis numbered 3,238, or 13.8 per cent, and in the thirty-one chartered cities in 1912 the deaths from this disease totaled 3,098, or 13.9 per cent. In the State outside cities the deaths from tuberculosis were 2,164, or 14.4 per cent of all, in 1913 and 2,030, or 14.1 per cent in 1912.

For chartered cities as a class the per cent of deaths from tuberculosis was slightly less in 1913 than in 1912, 13.8 against 13.9, while for the State outside these cities the per cent was slightly greater in 1913 than in 1912, 14.4 as compared with 14.1. Moreover, the annual average per cent of deaths from tuberculosis in 1909 to 1913 was slightly less for chartered cities, 14.5, than for all the rest of the State, 14.9.

From the annual average per cents for 1909 to 1913 it appears that the mortality from tuberculosis was relatively greatest in the following cities: San Bernardino, 26.7; Riverside, 21.1; Pasadena, 20.4; Los Angeles, 18.1; Stockton, 16.9; and San Diego, 16.3. On the other hand, the annual average per cent of deaths from tuberculosis in the five year period was only 8.2 for Richmond, 8.8 for Long Beach, 9.3 for Berkeley, 9.4 for Santa Monica, 9.9 for Alameda, 10.0 for Palo Alto, 10.1 for Salinas, 10.5 for Vallejo, 10.7 for Santa Cruz, 11.2 for Oakland, and 11.3 for Fresno.

Length of Residence (Geographic Divisions).—The heavy mortality from tuberculosis in California is due largely to the immigration of people so badly afflicted with this disease that they can not recover, even under the most favorable climatic conditions, though they may lengthen their lives somewhat by coming to this land of sunshine. For it appears that many who died of tuberculosis in California had been residents of the Golden State for only a short time. This is shown for the several geographic divisions in 1913 and 1912 in the following table, giving numbers and per cents by length of residence:

TABLE 8.—Deaths from Tuberculosis Classified by Length of Residence in California, with Per Cent, for Geographic Divisions: 1913 and 1912.

Geographic division	Total	Length of residence					Per cent				
		Under 1 year.	1 to 9 years.	10 years and over.	Life.	Unknown.	Under 1 year.	1 to 9 years.	10 years and over.	Life.	Unknown.
1913.											
THE STATE.....	5,402	540	1,458	1,385	1,515	504	10.0	27.0	25.6	28.1	9.3
Northern California.....	465	15	66	170	173	41	3.2	14.2	36.6	37.2	8.8
Coast counties.....	255	2	43	90	103	17	0.8	16.8	35.3	40.4	6.7
Interior counties.....	210	13	23	80	70	24	6.2	11.0	38.1	33.3	11.4
Central California.....	2,555	100	441	704	1,005	305	3.9	17.3	27.6	39.3	11.9
San Francisco.....	880	32	150	261	349	88	3.6	17.0	29.7	30.7	10.0
Other bay counties.....	516	22	90	152	220	32	4.3	17.4	29.5	42.6	6.2
Coast counties.....	311	8	38	92	143	30	2.6	12.2	29.6	46.0	9.6
Interior counties.....	848	38	163	199	293	155	4.5	19.2	23.5	34.5	18.3
Southern California.....	2,382	425	961	511	337	158	17.8	39.9	21.5	14.2	6.6
Los Angeles.....	1,636	277	677	303	226	93	16.9	41.4	22.2	13.8	5.7
Other counties.....	746	148	274	148	111	65	19.9	36.7	19.8	14.9	8.7
Northern and Central California.....	3,020	115	507	874	1,178	346	3.8	16.8	28.9	39.0	11.5
Coast counties.....	1,962	64	321	595	815	167	3.3	16.4	30.3	41.5	8.5
Interior counties.....	1,058	51	186	279	363	179	4.8	17.6	26.4	34.3	16.9
Metropolitan area.....	1,396	54	240	413	569	120	3.9	17.2	29.6	40.7	8.6
Rural counties.....	1,624	61	267	461	609	226	3.8	16.4	28.4	37.5	13.0
1912.											
THE STATE.....	5,128	501	1,333	1,317	1,429	548	9.8	26.0	25.7	27.8	10.7
Northern California.....	462	19	66	161	180	36	4.1	14.3	34.8	39.0	7.8
Coast counties.....	261	6	41	78	111	25	2.3	15.7	29.9	42.5	9.6
Interior counties.....	201	13	25	83	69	11	6.5	12.4	41.3	34.3	5.3
Central California.....	2,388	99	375	687	923	304	4.1	15.7	28.8	38.7	12.7
San Francisco.....	832	34	104	246	344	124	4.0	12.2	28.9	40.4	14.5
Other bay counties.....	539	20	90	164	227	38	3.7	16.7	30.4	42.1	7.1
Coast counties.....	264	5	37	65	133	23	1.9	14.0	25.0	50.4	8.7
Interior counties.....	733	40	144	211	219	119	5.5	19.6	28.8	29.9	16.4
Southern California.....	2,278	383	802	469	326	208	16.8	39.2	20.6	14.3	9.1
Los Angeles.....	1,577	270	641	320	198	148	17.1	40.6	20.3	12.6	9.4
Other counties.....	701	113	251	149	128	60	16.1	35.8	21.2	18.3	8.0
Northern and Central California.....	2,850	118	441	848	1,103	340	4.1	15.5	29.8	38.7	11.7
Coast counties.....	1,916	65	272	554	815	210	3.4	14.2	28.9	42.5	11.7
Interior counties.....	934	53	169	294	288	130	5.7	18.1	31.5	30.8	13.7
Metropolitan area.....	1,391	54	191	410	571	162	3.9	13.9	29.5	41.1	11.7
Rural counties.....	1,459	64	247	438	532	178	4.4	16.9	30.0	36.5	12.7

Analysis of the per cents in Table 8, for 1913 and 1912, is facilitated by the annual averages for 1909 to 1913 presented in the following tabular statement for selected geographic divisions:

Geographic division.	Annual average per cent of deaths from tuberculosis: 1909 to 1913				
	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
THE STATE.....	9.2	25.0	24.9	29.0	11.9
Northern and Central California.....	8.5	14.6	28.4	38.8	14.7
Metropolitan area.....	3.1	13.0	26.7	41.5	15.7
San Francisco.....	3.0	10.7	24.9	40.7	20.7
Other bay counties.....	3.3	16.7	29.5	42.8	7.7
Rural counties.....	4.0	15.9	30.0	36.4	13.7
Southern California.....	16.8	39.0	20.2	15.8	8.2
Los Angeles.....	17.1	40.0	20.3	14.2	8.4
Other counties.....	16.4	37.0	19.8	19.2	7.6

It appears from Table 8 and the tabular statement presented herewith that the per cent of tuberculosis victims in California who were natives of the State, having been here for life, was only 28.1 in 1913 and 27.8 in 1912, against the average of 29.0 for 1909 to 1913. The per cents for those born elsewhere who were residents of 10 years' standing were 25.6 and 25.7 in 1913 and 1912 against the average of 24.9, while the per cents for those who had lived in California only from 1 to 9 years were 27.0 and 26.0 against the average of 25.0. The per cent of all deaths from tuberculosis occurring among persons who had been in the State less than a year was 10.0 in 1913 and 9.8 in 1912, as compared with the average of 9.2 for 1909 to 1913. The length of residence was unknown for 9.3 per cent of the tuberculosis victims in 1913 and for 10.7 per cent in 1912, against the annual average of 11.9 for the five year period.

Reference to the annual average per cents for 1909 to 1913 in the preceding tabular statement shows that the per cent of tuberculosis victims who were natives of the State was no less than 38.8 for Northern and Central California against merely 15.8 for the territory south of Tehachapi. The average per cent of tuberculosis victims born in the State was 41.5 for the metropolitan area as compared with 36.4 for the rural counties north of Tehachapi, but was only 40.7 for the metropolis proper against 42.8 for the suburban counties.

The average per cent of deaths from tuberculosis among residents of 10 years' standing was 28.4 for the territory north of Tehachapi against only 20.2 for that to the south. The average per cent was 26.7 for the metropolitan area against 30.0 for the rural counties of Northern and Central California, and was 24.9 for San Francisco against 29.5 for the other bay counties.

In 1909 to 1913, by the annual averages, altogether 34.2 of the deaths from tuberculosis in California as a whole occurred among residents of less than 10 years' standing, 25.0 per cent having lived here from 1 to 9 years and 9.2 per cent under 1 year.

The average per cent for residents of less than 10 years' standing is above the State figure, 34.2, only for Southern California, 55.8, the per cent being 57.1 for Los Angeles and 53.4 for the other counties south of Tehachapi. On the other hand, the corresponding average per cent was only 18.1 for the territory north of Tehachapi, being only 16.1 for the metropolitan area against 19.9 for the rural counties and merely 13.7 for San Francisco against 20.0 for the suburban counties.

It seems, therefore, that in Southern California, where nearly one fifth of all deaths are from tuberculosis, considerably more than half of these deaths occurred among persons who had been in the State less than 10 years when they died. In fact, about one sixth of all tuberculosis victims south of Tehachapi had resided in California less than a year, the annual average per cent in 1909 to 1913 being 17.1 for Los Angeles and 16.4 for the other counties, or 16.8 for Southern California as a whole.

Length of Residence (Cities).—The preceding figures on length of residence for geographic divisions in 1913 and 1912 are supplemented by those in the following table for the several chartered cities in contrast with the rest of the State, the cities being arranged according to geographic location. The absolute figures are shown for each of the thirty-two chartered cities in 1913 and the thirty-one in 1912, but the per cents have been calculated only for those cities reporting at least 25 deaths from tuberculosis in either year, respectively.

TABLE 9.—Deaths from Tuberculosis Classified by Length of Residence in California, with Per Cents, for Individual Cities and Rest of State: 1913 and 1912.

City	Total	Length of residence					Per cent				
		Under 1 year	1 to 9 years	10 years and over	Life	Unknown	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
1913.											
CALIFORNIA	5,402	540	1,458	1,385	1,515	504	10.0	27.0	25.6	28.1	9.3
32 Freeholders' charter cities	3,238	384	904	861	884	255	10.3	27.9	26.6	27.3	7.9
Northern California											
Eureka	25	1	4	12	6	2	4.0	16.0	48.0	24.0	8.0
Napa	17		1	7	8	1	*	*	*	*	*
Petaluma	6			2	4		*	*	*	*	*
Santa Rosa	13		2	4	7		*	*	*	*	*
Grass Valley	8		1	3	4		*	*	*	*	*
Central California											
San Francisco	880	32	150	261	349	88	3.6	17.0	29.7	39.7	10.0
Alameda	32	1	6	11	13	1	3.1	18.8	34.4	40.6	3.1
Berkeley	87	6	7	10	14		16.2	18.9	27.0	37.9	
Oakland	223	6	46	68	96	12	2.6	20.2	29.8	42.1	5.3
Richmond	11	1		4	6		*	*	*	*	*
San Rafael	13			7	6		*	*	*	*	*
Monterey	9			5	4		*	*	*	*	*
Salinas	7			3	4		*	*	*	*	*
San Luis Obispo	16		2	5	9		*	*	*	*	*
Palo Alto	2			1		1	*	*	*	*	*
San Jose	50	1	8	19	30	1	1.7	13.6	32.2	50.8	1.7
Santa Cruz	25	3	1	8	10	3	12.0	4.0	32.0	40.0	12.0
Watsonville	13	1	3		8	1	*	*	*	*	*
Fresno	43	4	7	11	16	5	9.3	16.3	25.6	37.2	11.6
Sacramento	164	5	21	28	52	58	3.0	12.8	17.1	31.7	35.4
Stockton	75	1	11	27	31	5	1.3	14.7	36.0	41.3	6.7
Vallejo	14	1	1	1	11		*	*	*	*	*
Modesto	16		8	3	3	2	*	*	*	*	*
Southern California											
Los Angeles	1,061	171	452	252	184	52	16.1	42.6	23.8	12.6	4.9
Long Beach	29	6	15	5	2	1	20.7	51.7	17.2	6.9	3.5
Pasadena	65	14	24	19	8		21.6	36.9	29.2	12.3	
Pomona	21	2	9	6	4		*	*	*	*	*
Santa Monica	14	3	3	5	3		*	*	*	*	*
Riverside	42	13	11	10	6	2	30.9	26.2	23.8	14.3	4.8
San Bernardino	91	16	34	16	9	16	17.6	37.3	17.6	9.9	17.6
San Diego	174	44	69	41	17	3	25.3	39.6	23.6	9.8	1.7
Santa Barbara	28	2	8	7	10	1	7.1	28.6	25.0	35.7	8.6
Rest of State	2,164	206	554	524	631	249	9.5	25.6	24.2	29.2	11.5
1912.											
CALIFORNIA	5,128	501	1,333	1,317	1,429	548	9.8	26.0	25.7	27.8	10.7
31 Freeholders' charter cities	3,098	318	823	790	837	330	10.3	26.6	25.5	27.0	10.6
Northern California											
Eureka	32	1	5	8	14	4	3.1	15.6	25.0	43.8	12.5
Napa	13	2	1	3	6	1	*	*	*	*	*
Petaluma	10		2	2	6		*	*	*	*	*
Santa Rosa	12		4	3	4	1	*	*	*	*	*
Grass Valley	11		2	7	1	1	*	*	*	*	*

TABLE 9—Continued.

City	Total	Length of residence					Per cent				
		Under 1 year	1 to 9 years	10 years and over	Life	Unknown	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
Central California											
San Francisco	852	34	104	246	344	124	4.0	12.2	28.9	40.4	14.5
Alameda	25	2	2	8	13		8.0	8.0	32.0	52.0	
Berkeley	42	1	6	12	23		2.4	14.3	28.6	54.7	
Oakland	222	11	46	72	87	16	4.8	19.8	31.0	37.5	6.9
Richmond	11		2	2	6	1	*	*	*	*	*
Monterey	9				9		*	*	*	*	*
Salinas	4			1	3		*	*	*	*	*
San Luis Obispo	17		2	6	9		*	*	*	*	*
Palo Alto	2			2			*	*	*	*	*
San Jose	61	4	8	19	28	2	6.6	13.1	31.1	45.9	3.3
Santa Cruz	10		2		7	1	*	*	*	*	*
Watsonville	12		2	3	7		*	*	*	*	*
Fresno	34	2	10	11	10	1	5.9	29.4	32.4	29.4	2.9
Sacramento	130	10	16	25	40	39	7.7	12.3	19.2	30.8	30.0
Stockton	95	2	20	38	27	8	2.1	21.1	40.0	28.4	8.4
Vallejo	14		2	5	7		*	*	*	*	*
Modesto	13	1	2	5	4	1	*	*	*	*	*
Southern California											
Los Angeles	979	157	403	207	118	99	16.0	41.2	21.2	11.5	10.1
Long Beach	29	11	10	3	5		37.9	34.5	10.4	17.2	
Pasadena	105	19	49	29	8		18.1	46.7	27.6	7.6	
Pomona	19	4	7	5	1	2	*	*	*	*	*
Santa Monica	11	4	5	1		1	*	*	*	*	*
Riverside	53	5	23	12	12	1	9.4	43.4	22.7	22.6	1.9
San Bernardino	64	7	28	9	5	15	10.9	43.8	14.1	7.8	23.4
San Diego	158	40	52	42	16	8	25.3	32.9	26.6	10.1	5.1
Santa Barbara	39	1	8	4	22	4	2.6	20.5	10.3	56.4	10.2
Rest of State	2,030	183	510	527	592	218	9.0	25.1	26.0	29.2	10.7

*Per cents not shown for totals less than 25.

As before, analysis of the per cents in this table, for 1913 and 1912, is aided by the annual averages for 1909 to 1913 presented herewith for chartered cities in contrast with the rest of the State as well as for selected individual cities, i. e., all having at least 25 deaths from tuberculosis in each of the five years last past.

Annual average per cent of deaths from tuberculosis:
1909 to 1913

City	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
CALIFORNIA	9.2	25.0	24.9	29.0	11.9
Freeholders' charter cities	9.4	26.1	24.9	28.1	11.5
Rest of State	8.9	23.3	24.9	30.3	12.6
Selected cities:					
Northern and Central California.					
San Francisco	3.0	10.7	24.9	40.7	20.7
Alameda	2.2	15.8	34.6	45.5	1.9
Berkeley	5.5	20.5	24.6	48.3	1.1
Oakland	3.1	18.0	30.0	41.1	7.8
San Jose	4.3	15.2	21.3	48.6	2.6
Fresno	8.2	23.2	28.8	31.1	8.7
Sacramento	3.9	16.7	25.5	34.8	19.1
Stockton	1.2	18.4	42.4	28.5	9.5
Southern California.					
Los Angeles	15.9	41.1	22.1	13.2	7.7
Pasadena	19.1	47.3	23.8	9.0	0.8
Riverside	18.0	41.9	18.5	18.4	3.2
San Bernardino	15.2	42.2	16.9	8.6	17.1
San Diego	21.3	37.3	24.6	12.9	3.9

It appears from this tabular statement that the distribution of tuberculosis deaths according to length of residence in California is not far from the same for chartered cities as for all the rest of the State. The annual average per cent in 1909 to 1913 for native Californians was 28.1 for chartered cities against 30.3 for the rest of the State. For residents of 10 years' standing and over the average per cent was exactly the same, 24.9, within cities as outside them, while for residents of less than 10 years' standing the per cent was altogether 35.5 for cities as a class against 32.2 for the rural territory as a whole. The average per cent of unknown length of residence was 11.5 for chartered cities as compared with 12.6 for the rest of the State.

Several of the cities in Southern California show a large proportion of deaths from tuberculosis among persons who had lived in California a comparatively short time. For residents of less than 10 years' standing the annual average per cent in 1909 to 1913 totaled as much as 66.4 for Pasadena, 59.9 for Riverside, 58.6 for San Diego, 57.4 for San Bernardino, and 57.0 for Los Angeles.

Moreover, the annual average per cent of tuberculosis victims who had lived in California less than a year was quite high in cities of Southern California, as follows: San Diego, 21.3; Pasadena, 19.1; Riverside, 18.0; Los Angeles, 15.9; and San Bernardino, 15.2.

Southern California.—In fact, many who died of tuberculosis in Southern California cities or in the whole territory south of Tehachapi had lived in the State only a few months. This appears clearly from the following table giving numbers and per cents by length of residence in months for Southern California in 1913 and 1912:

TABLE 10.—Deaths from Tuberculosis Classified by Length of Residence (In Months), with Per Cents, for Southern California: 1913 and 1912.

Geographic division	Length of residence									
	Total under 1 year		Under 1 month		1 to 2 months		3 to 5 months		6 to 11 months	
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
Numbers.										
<i>Southern California</i>	425	383	51	42	105	94	118	107	151	140
Los Angeles	277	270	33	29	56	70	79	70	109	101
Other counties ..	148	113	18	13	49	24	39	37	42	39
Per Cents.										
<i>Southern California</i>	17.8	16.8	2.1	1.8	4.4	4.1	5.0	4.7	6.3	6.2
Los Angeles	16.9	17.1	2.0	1.9	3.4	4.4	4.8	4.4	6.7	6.4
Other counties ..	19.9	16.1	2.4	1.8	6.6	3.4	5.2	5.3	5.7	5.6

Table 10 for 1913 and 1912 may be supplemented by the annual average per cents for 1909 to 1913 presented in the following tabular statement:

Geographic division.	Annual average per cent of deaths from tuberculosis: 1909 to 1913				
	Total under 1 year	Under 1 month	1 to 2 months	3 to 5 months	6 to 11 months
<i>Southern California</i>	16.8	1.8	4.5	4.8	5.7
Los Angeles	17.1	1.8	4.3	4.9	6.1
Other counties	16.4	2.0	4.8	4.5	5.1

From the supplementary annual average per cents for 1909 to 1913 it appears that of all who died of tuberculosis in Southern California 1.8 per cent had been in the State less than a month, altogether 6.3 per cent less than three months, and altogether 11.1 per cent less than six months. Of all the tuberculosis victims in Los Angeles, an average of 11.0 per cent had resided in California less than half a year, the corresponding figure being 11.3 for the other counties south of Tehachapi.

Month of Death.—The following table gives the number and per cent of deaths occurring each month from tuberculosis for California as a whole in both 1913 and 1912, together with the corresponding per cents for 1911 and 1910 and annual average per cents for the four year period, 1910 to 1913:

TABLE 11.—Number and Per Cent of Deaths Occurring Each Month from Tuberculosis, for California: 1913 and 1912.

Month	Deaths		Tuberculosis				Corresponding per cent		Annual average per cent: 1910 to 1913
	1913	1912	Number		Per cent		1911	1910	
			1913	1912	1913	1912			
STATE TOTAL	38,569	36,709	5,402	5,128	14.0	14.0	15.0	15.0	14.5
January	4,146	3,437	525	474	12.7	13.8	15.0	16.0	14.4
February	3,165	3,104	408	480	14.8	15.8	14.7	17.2	15.6
March	3,408	3,409	532	502	15.6	14.7	17.2	16.6	16.0
April	3,238	3,046	494	474	15.3	15.6	16.9	16.5	16.1
May	3,258	3,044	445	497	13.7	16.3	17.9	16.2	16.0
June	3,089	2,788	456	372	14.8	13.3	15.2	15.0	14.6
July	3,075	2,992	414	385	13.5	12.9	15.4	13.3	13.8
August	2,948	2,697	378	373	12.8	13.8	14.0	14.7	13.8
September	2,809	2,656	406	316	14.4	11.9	14.9	12.9	13.5
October	3,028	2,971	484	344	14.3	11.6	12.8	12.3	12.8
November	2,988	3,019	407	409	13.6	13.5	12.6	15.2	13.7
December	3,449	3,546	444	493	12.9	13.9	13.6	14.2	13.7

It appears from Table 11 that the per cent of deaths from tuberculosis was highest for March (15.6) in 1913, for May (16.3 and 17.9) in both 1912 and 1911, and for February (17.2) in 1910. From the annual average per cents for the whole four years, 1910 to 1913, it seems that the period of greatest mortality from tuberculosis covers the months of February, March, April and May, while the time when deaths from this disease are relatively least numerous extends over the months of August, September, October, and November. The high mortality from tuberculosis in California in the spring months may be ascribed in part to deaths occurring at this season among consumptives who came from the east in earlier winter months only to succumb finally to their dread malady after a comparatively short residence here.

Conclusion.—These figures give only a minimum statement of the extent to which the general death rate of California is swollen by the deaths of persons who were stricken with tuberculosis elsewhere, and who simply came here in the hope of recovering, or with the expectation of at least lengthening their lives in the glorious climate of the Golden State. The statistics cover only the deaths that occur among these recent residents, in many cases quite soon after their arrival in this land of sunshine. No data are available to tell what proportion of deaths

from tuberculosis among native Californians and old-time residents are directly due to imported infection by the presence here of sick people from other places. It is quite evident, however, that the death rate of California is swollen somewhat by the unhealthfulness, not of this State, but of other states, being increased, in fact, by the wide fame of California as a curative health resort. For the leading single cause of death the State is one which finds most of its victims among newcomers seeking restored health and finding longer, happier life in the balmy atmosphere of California.

DEATHS BY SEX, RACE, NATIVITY AND AGE PERIODS.

Sex.—The proportion of the sexes among decedents is given in the following table for the several geographic divisions in 1913 and 1912, both numbers and per cents being shown :

TABLE 12.—Deaths Classified by Sex, with Per Cents, for Geographic Divisions: 1913 and 1912.

Geographic division	Deaths						Per cent male		Per cent female	
	Total		Male		Female		1913	1912	1913	1912
	1913	1912	1913	1912	1913	1912				
THE STATE	38,599	36,709	23,807	22,634	14,792	14,075	61.7	61.7	38.3	38.3
<i>Northern California</i>	4,267	4,029	2,871	2,741	1,396	1,288	67.3	68.0	32.7	32.0
Coast counties	2,187	2,155	1,446	1,451	741	704	66.1	67.3	33.9	32.7
Interior counties	2,080	1,874	1,425	1,290	655	584	68.5	68.8	31.5	31.2
<i>Central California</i>	20,302	19,653	12,619	12,184	7,683	7,469	62.2	62.0	37.8	38.0
San Francisco	7,002	6,766	4,350	4,180	2,652	2,586	62.1	61.8	37.9	38.2
Other bay counties	4,902	4,470	2,737	2,622	1,865	1,848	59.5	58.7	40.5	41.3
Coast counties	2,431	2,332	1,461	1,374	970	958	60.1	58.9	39.9	41.1
Interior counties	6,267	6,085	4,071	4,008	2,196	2,077	65.0	65.9	35.0	34.1
<i>Southern California</i>	14,030	13,027	8,317	7,709	5,713	5,318	59.3	59.2	40.7	40.8
Los Angeles	9,705	8,900	5,635	5,142	4,070	3,748	58.1	57.8	41.9	42.2
Other counties	4,325	4,127	2,682	2,567	1,643	1,570	62.0	62.0	38.0	38.0
<i>Northern and Central California</i>	24,569	23,682	15,490	14,925	9,079	8,757	63.0	63.0	37.0	37.0
Coast counties	16,222	15,723	9,994	9,627	6,228	6,096	61.6	61.2	38.4	38.8
Interior counties	8,347	7,959	5,496	5,298	2,851	2,661	65.8	66.6	34.2	33.4
Metropolitan area	11,804	11,236	7,087	6,802	4,517	4,434	61.1	60.5	38.9	39.5
Rural counties	12,965	12,446	8,403	8,123	4,562	4,323	64.8	65.3	35.2	34.7

Table 12 shows that of 38,599 persons who died in California in 1913, altogether 23,807 or 61.7 per cent were male, and 14,792 or 38.3 per cent were female. Similarly, among the 36,709 deaths in 1912, the males were 22,634 or 61.7 per cent, and the females were 14,075 or 38.3 per cent, the per cents by sex being the same for 1913 as for 1912. It may be added that for 1909 to 1913, the annual average per cent male was 62.0, and the per cent female was 38.0.

Each year the per cent male was highest for Northern California, 67.3 in 1913 and 68.0 in 1912, and next for Central California, 62.2 and 62.0, the per cent being 63.0 each year for Northern and Central California together against 59.3 in 1913 and 59.2 in 1912 for Southern California.

The per cents male were highest among minor geographic divisions for the interior counties of Northern California, 68.5 and 68.8; next

for the coast counties of Northern California, 66.1 and 67.3; and next for the interior counties of Central California, 65.0 and 65.9. The per cents male were lowest of all each year for Los Angeles, 58.1 and 57.8, and next for the bay counties other than San Francisco, 59.5 and 58.7.

The per cents male were much less for the metropolitan area (61.1 and 60.5) than for the rural counties north of Tehachapi (64.8 and 65.3), but were much greater for San Francisco (62.1 and 61.8) than for the group of other bay counties (59.5 and 58.7).

Sex and Cause of Death.—The following table shows for California as a whole in both 1913 and 1912, the deaths from certain principal causes classified by sex, with the per cents male and female:

TABLE 13.—Deaths from Certain Principal Causes Classified by Sex, with Per Cents, for California: 1913 and 1912.

Cause of death	Deaths						Per cent male		Per cent female	
	Total		Male		Female					
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
ALL CAUSES	38,599	36,709	23,807	22,634	14,792	14,075	61.7	61.7	38.3	38.3
Typhoid fever	435	454	294	309	142	145	67.4	68.1	32.6	31.9
Malarial fever	77	101	46	58	31	43	59.7	57.4	40.3	42.6
Smallpox	15	16	8	9	7	7	53.3	56.3	46.7	43.7
Measles	154	134	75	67	79	67	48.7	50.0	51.3	50.0
Scarlet fever	85	34	42	13	43	21	49.4	38.2	50.6	61.8
Whooping-cough	128	193	52	87	76	106	40.6	45.1	59.4	54.9
Diphtheria and croup	183	158	106	83	80	72	57.0	54.4	43.0	45.6
Influenza	220	146	108	70	112	76	49.1	47.9	50.9	52.1
Plague	2		1		1		50.0		50.0	
Other epidemic diseases	180	185	102	106	78	80	56.7	57.0	43.3	43.0
Tuberculosis of lungs	4,536	4,316	3,063	2,856	1,473	1,460	67.5	66.2	32.5	33.8
Tuberculosis of other organs	866	812	498	458	368	354	57.5	56.4	42.5	43.6
Cancer	2,565	2,306	1,241	1,096	1,324	1,211	48.4	47.5	51.6	52.5
Other general diseases	1,733	1,621	1,050	1,014	683	607	60.6	62.6	39.4	37.4
Meningitis	405	308	233	180	172	128	57.5	58.4	42.5	41.6
Other diseases of nervous system	3,315	2,959	1,927	1,771	1,388	1,188	58.1	59.9	41.9	40.1
Diseases of circulatory system	6,281	6,376	3,920	3,965	2,361	2,391	62.4	62.5	37.6	37.5
Pneumonia and broncho-pneumonia	2,938	2,968	1,769	1,790	1,169	1,178	60.2	60.3	39.8	39.7
Other diseases of respiratory system	868	872	497	491	371	381	57.3	56.3	42.7	43.7
Diarrhea and enteritis, under 2 years	1,270	1,056	708	592	562	464	55.7	56.1	44.3	43.9
Diarrhea and enteritis, 2 years and over	339	359	196	192	174	167	52.8	53.5	47.2	46.5
Other diseases of digestive system	1,995	1,980	1,223	1,205	772	775	61.3	60.9	38.7	39.1
Bright's disease and nephritis	2,392	2,185	1,538	1,407	854	778	64.3	64.4	35.7	35.6
Childbirth	395	333			395	333			100.0	100.0
Diseases of early infancy	1,444	1,339	836	771	608	568	57.9	56.3	42.1	43.7
Suicide	837	803	682	677	155	126	81.5	84.3	18.5	15.7
Other violence	3,133	2,952	2,572	2,395	561	557	82.1	81.1	17.9	18.9
All other causes	1,774	1,682	1,021	950	753	732	57.6	56.5	42.4	43.5

This table shows that in both 1913 and 1912 the per cents male were highest for deaths from the following important causes: Suicide, 81.5 and 84.3; other violence, 82.1 and 81.1; typhoid fever, 67.4 and 68.1; tuberculosis of the lungs, 67.5 and 66.2; Bright's disease and nephritis, 64.3 and 64.4; and diseases of the circulatory system, 62.4 and 62.5.

On the other hand, except of course for deaths from childbirth, the per cent female was notably high each year only for whooping-cough, 59.4 in 1913 and 54.9 in 1912; cancer, 51.6 and 52.5; scarlet fever, 50.6 and 61.8; influenza, 50.9 and 52.1; and measles, 51.3 and 50.0. In all other cases the male decedents outnumbered the female, for some diseases greatly.

Race.—The race distribution of persons dying in the several geographic divisions in 1913 and 1912 is given in the following table, together with the per cent white among decedents:

TABLE 14.—Deaths Classified by Race, with Per Cent White, for Geographic Divisions: 1913 and 1912.

Geographic division	Deaths						Per cent white
	Total	White	Negro	Indian	Chinese	Japanese	
1913.							
THE STATE.....	38,599	36,501	595	183	707	613	94.6
Northern California.....	4,267	4,017	26	110	83	31	94.1
Coast counties.....	2,187	2,088	4	59	19	17	95.5
Interior counties.....	2,080	1,929	22	51	64	14	92.7
Central California.....	20,302	19,091	227	48	547	389	94.0
San Francisco.....	7,002	6,666	49	1	230	56	95.2
Other bay counties.....	4,902	4,369	96	4	80	53	94.9
Coast counties.....	2,131	2,279	14	8	46	84	93.7
Interior counties.....	6,267	5,777	68	35	191	196	92.2
Southern California.....	14,030	13,393	342	25	77	193	95.5
Los Angeles.....	9,705	9,238	270	3	53	141	96.2
Other counties.....	4,325	4,155	72	22	24	52	96.1
Northern and Central California.....	24,569	23,108	253	158	630	420	94.1
Coast counties.....	16,222	15,402	163	72	375	210	94.9
Interior counties.....	8,347	7,706	90	86	255	210	92.3
Metropolitan area.....	11,604	11,035	145	5	310	109	95.1
Rural counties.....	12,965	12,073	108	153	320	311	93.1
1912.							
THE STATE.....	36,709	34,732	543	169	741	524	94.6
Northern California.....	4,029	3,819	18	100	75	17	94.8
Coast counties.....	2,155	2,066	6	60	18	5	95.9
Interior counties.....	1,874	1,753	12	40	57	12	93.5
Central California.....	19,653	18,430	244	39	592	348	93.8
San Francisco.....	6,766	6,387	53	1	273	52	94.4
Other bay counties.....	4,470	4,256	88	4	77	45	95.2
Coast counties.....	2,332	2,194	11	3	56	68	94.1
Interior counties.....	6,365	5,693	92	31	186	183	91.9
Southern California.....	13,027	12,483	281	30	74	159	95.8
Los Angeles.....	8,800	8,480	233	6	52	119	95.4
Other counties.....	4,137	4,003	48	24	22	40	96.8
Northern and Central California.....	23,682	22,249	262	139	667	365	93.9
Coast counties.....	15,723	14,603	158	68	424	170	94.8
Interior counties.....	7,959	7,346	104	71	243	195	92.3
Metropolitan area.....	11,236	10,643	141	5	350	97	94.7
Rural counties.....	12,446	11,606	121	134	317	268	93.3

It appears from Table 14 that in 1913 the white decedents numbered 36,501, or 94.6 per cent; the Chinese, 707; the Japanese, 613; the negroes, 595; and the Indians, 183. For 1912, the figures were as follows: White, 34,732, or 94.6 per cent; Chinese, 741; negro, 543. Japanese, 524; and Indian, 169.

The per cent white for California as a whole was exactly the same in both 1913 and 1912 as the annual average per cent of 94.6 for the five-year period, 1909 to 1913.

In 1913 and 1912, respectively, the per cents white were 95.5 and 95.8 for Southern California as compared with 94.1 and 93.9 for Northern and Central California together, the per cents for Northern California being 94.1 and 94.8 and for Central California being 94.0 and 93.8.

Among minor geographic divisions, the per cents white were above the State average of 94.6 each year in the following cases: Southern California outside Los Angeles, 96.1 and 96.8; coast counties of Northern California, 95.5 and 95.9; Los Angeles, 95.2 and 95.4; and bay counties other than San Francisco, 94.9 and 95.2. The per cent white was also above the average in 1913 alone for San Francisco, 95.2.

The per cent white was somewhat greater each year for the metropolitan area (95.1 and 94.7) than for the rural counties north of Tehachapi (93.1 and 93.3), but was not far from the same for the metropolis proper (95.2 and 94.4) as for the suburban counties (94.9 and 95.2).

Each year the deaths among Chinese occurred mainly in San Francisco and suburbs and in the interior counties of Central California. The deaths of Japanese occurred mainly in the interior counties of Central California and also in Los Angeles. The number of negro decedents was particularly great only for Los Angeles in both years. Almost two thirds of the Indian deaths each year were in Northern California.

Race and Cause of Death.—The following table shows for California in 1913 and 1912 the deaths from certain principal causes classified by race, as well as the per cent white in each case:

TABLE 15.—Deaths from Certain Principal Causes Classified by Race, with Per Cent White, for California: 1913 and 1912.

Cause of death	Deaths						Per cent white
	Total	White	Negro	Indian	Chinese	Japanese	
1913.							
ALL CAUSES	28,599	36,501	595	188	707	613	94.6
Typhoid fever	436	399	5	1	6	25	91.5
Malarial fever	77	68	1	1	3	4	88.3
Smallpox	15	15					100.0
Measles	154	146	1	2		5	94.8
Scarlet fever	85	75			10		88.2
Whooping-cough	128	120	3	1		4	93.8
Diphtheria and croup	186	179		1	2	4	96.2
Influenza	220	216	1		3		98.2
Plague	2	1				1	50.0
Other epidemic diseases	180	173	2	3	1	1	96.1
Tuberculosis of lungs	4,536	4,113	130	44	180	69	90.7
Tuberculosis of other organs	866	796	26	7	8	29	91.9
Cancer	2,565	2,497	27	2	36	3	97.3
Other general diseases	1,733	1,662	24	7	23	17	95.9
Meningitis	405	377	8	1	1	18	93.1
Other diseases of nervous system	3,315	3,190	47	9	54	15	96.2
Diseases of circulatory system	6,281	6,071	86	9	98	17	96.7
Pneumonia and broncho-pneumonia	2,938	2,754	48	17	52	67	93.7
Other diseases of respiratory system	868	825	6	5	21	11	95.0
Diarrhea and enteritis, under 2 years	1,270	1,162	11	13	8	76	91.5
Diarrhea and enteritis, 2 years and over	369	343	4	6	9	7	93.0
Other diseases of digestive system	1,996	1,889	23	6	40	37	94.7
Bright's disease and nephritis	2,392	2,288	36	4	46	18	95.7
Childbirth	395	367	4	2	3	19	92.9
Diseases of early infancy	1,444	1,334	25	10	12	63	92.4
Suicide	837	796	7	1	14	20	95.0
Other violence	3,133	2,942	44	23	51	73	93.9
All other causes	1,774	1,704	26	8	26	10	96.1
1912.							
ALL CAUSES	36,709	34,732	548	169	741	524	94.6
Typhoid fever	454	416	4	1	8	25	91.6
Malarial fever	101	89		1	8	3	88.1
Smallpox	16	15	1				88.8
Measles	134	130		1	2	1	97.0
Scarlet fever	34	34					100.0
Whooping-cough	193	178	5	2	2	6	92.2
Diphtheria and croup	158	157			1		99.4
Influenza	146	140	3		1	2	95.9
Other epidemic diseases	186	177		1	6	2	95.2
Tuberculosis of lungs	4,316	3,949	110	40	167	50	91.5
Tuberculosis of other organs	812	734	20	9	17	32	90.4
Cancer	2,306	2,245	21	2	27	11	97.4
Other general diseases	1,621	1,541	24	5	41	10	95.1
Meningitis	308	283	5	1	3	16	91.9
Other diseases of nervous system	2,960	2,857	45	4	42	11	96.6
Diseases of circulatory system	6,376	6,148	68	11	123	26	96.4
Pneumonia and broncho-pneumonia	2,968	2,768	52	22	64	62	93.3
Other diseases of respiratory system	872	833	13	3	8	15	95.5
Diarrhea and enteritis, under 2 years	1,066	982	8	7	8	51	93.0
Diarrhea and enteritis, 2 years and over	359	333	6	2	10	8	92.8
Other diseases of digestive system	1,980	1,870	34	8	39	29	94.4
Bright's disease and nephritis	2,185	2,079	34	6	53	13	95.1
Childbirth	363	347	3	1		12	95.6
Diseases of early infancy	1,360	1,300	14	5	7	43	95.0
Suicide	803	758	9		16	20	94.4
Other violence	2,952	2,754	43	25	73	57	93.3
All other causes	1,682	1,615	21	12	15	10	96.0

The per cents white were above the general average of 94.6 in both 1913 and 1912 for deaths from the following important causes: Diphtheria and croup, 96.2 and 99.4; influenza, 98.2 and 95.9; measles, 94.8 and 97.0; cancer, 97.3 and 97.4; diseases of the circulatory system, 96.7 and 96.4; diseases of the nervous system other than meningitis, 96.2 and 96.6; Bright's disease and nephritis, 95.7 and 95.1; and diseases of the respiratory system other than pneumonia and broncho-pneumonia, 95.0 and 95.5.

The table shows, however, that the per cents white are very low indeed for typhoid fever, 91.5 and 91.6, as well as for tuberculosis, being 90.7 and 91.5 for the pulmonary form and 91.9 and 90.4 for all other kinds.

From further analysis of the figures in the table it appears that the proportion of Caucasians among all dying from typhoid fever is relatively small, because many deaths from this disease occur among the Japanese, and that the proportion of Caucasians among tuberculosis victims is relatively small, because the "great white plague" is especially fatal among Chinese and negroes.

Thus, the per cents Japanese among all dying from typhoid fever were no less than 5.7 in 1913 (25 among 436) and 5.5 in 1912 (25 among 454), while the per cent Japanese among all decedents was only 1.6 in 1913 and 1.4 in 1912.

Likewise, the Chinese and negroes are strongly represented among the victims of pulmonary tuberculosis in California, the Chinese who died from tuberculosis of the lungs numbering 180 in 1913 and 167 in 1912, and the negroes numbering, respectively, 130 and 110. While the per cent Chinese was only 1.8 in 1913 and 2.0 in 1912 among all decedents in California, the per cents Chinese were no less than 4.0 and 3.9 for deaths from tuberculosis of the lungs. Similarly, while the per cent negro was only 1.5 each year among all decedents, the per cent negro was as great as 2.8 in 1913 and 2.5 in 1912 among those dying from pulmonary tuberculosis alone. For tuberculosis of other organs than the lungs the per cents in 1913 and 1912, respectively, were notably high for Japanese, 3.4 and 3.9, as well as for negroes, 3.0 and 2.5.

Nativity of White Decedents.—In further analysis of deaths by race, the nativity of white decedents is worth considering. Accordingly, Table 16, which follows, has been prepared classifying white decedents as born in California, born in other states, foreign born, or nativity unknown.

TABLE 16.—White Decedents Classified by Nativity, with Per Cents, for Geographic Divisions: 1913 and 1912.

Geographic divisions	White decedents					Per cent			
	Total	Born in Cal- ifornia	Born in other states	For- eign born	Un- known	Born in Cal- ifornia	Born in other states	For- eign born	Un- known
1913.									
THE STATE	36,501	9,675	14,297	11,404	1,125	26.5	39.2	31.2	3.1
<i>Northern California</i>	4,017	1,036	1,550	1,267	164	25.8	38.6	31.5	4.1
Coast counties	2,068	548	753	737	50	26.2	36.1	35.3	2.4
Interior counties	1,929	488	797	530	114	25.3	41.3	27.5	5.9
<i>Central California</i>	19,091	5,871	5,729	6,967	524	30.8	30.0	36.5	2.7
San Francisco	6,666	2,004	1,497	2,943	222	30.1	22.5	44.1	3.3
Other bay counties	4,509	1,332	1,330	1,635	72	30.5	30.4	37.4	1.7
Coast counties	2,279	657	813	785	24	28.8	35.7	34.4	1.1
Interior counties	5,777	1,878	2,089	1,804	206	32.5	36.1	27.8	3.6
<i>Southern California</i>	13,393	2,768	7,018	3,170	437	20.7	52.4	23.7	3.2
Los Angeles	9,238	1,749	5,008	2,213	268	18.9	54.2	24.0	2.9
Other counties	4,155	1,019	2,010	957	169	24.5	48.4	23.0	4.1
<i>Northern and Central California</i>	23,108	6,907	7,279	8,234	688	29.9	31.5	35.6	3.0
Coast counties	15,402	4,541	4,393	6,100	368	29.5	28.5	39.6	2.4
Interior counties	7,706	2,366	2,886	2,134	320	30.7	37.4	27.7	4.2
Metropolitan area	11,035	3,336	2,827	4,578	294	30.2	25.6	41.5	2.7
Rural counties	12,073	3,571	4,452	3,656	394	29.6	36.9	30.3	3.2
1912.									
THE STATE	34,732	9,143	13,617	10,936	1,036	26.3	39.2	31.5	3.0
<i>Northern California</i>	3,819	1,034	1,473	1,170	142	27.1	38.6	30.6	3.7
Coast counties	2,066	544	731	727	64	26.3	35.4	35.2	3.1
Interior counties	1,753	490	742	443	78	28.0	42.3	25.3	4.4
<i>Central California</i>	18,430	5,660	5,549	6,752	469	30.7	30.1	36.6	2.6
San Francisco	6,387	2,005	1,358	2,845	179	31.4	21.3	44.5	2.8
Other bay counties	4,256	1,294	1,295	1,601	66	30.4	30.4	37.6	1.6
Coast counties	2,194	676	817	672	29	30.8	37.3	30.6	1.3
Interior counties	5,593	1,685	2,079	1,634	195	30.1	37.2	29.2	3.5
<i>Southern California</i>	12,483	2,449	6,595	3,014	425	19.6	52.8	24.2	3.4
Los Angeles	8,480	1,515	4,614	2,087	264	17.9	54.4	24.6	3.1
Other counties	4,008	934	1,981	927	161	23.3	49.5	23.2	4.0
<i>Northern and Central California</i>	22,240	6,694	7,022	7,922	611	30.1	31.6	35.6	2.7
Coast counties	14,908	4,519	4,201	5,845	338	30.3	28.2	39.2	2.3
Interior counties	7,346	2,175	2,821	2,077	273	29.6	38.4	28.3	3.7
Metropolitan area	10,643	3,200	2,653	4,446	245	31.0	24.9	41.8	2.3
Rural counties	11,606	3,395	4,369	3,476	366	29.3	37.6	29.9	3.2

Table 16 shows that of the 36,501 white decedents in California in 1913 and the 34,732 in 1912, those who were born in other states totaled 14,297 and 13,617; the foreign born numbered 11,404 and 10,936; the native Californians were 9,675 and 9,143; and the nativity was unknown for 1,125 in 1913 and 1,036 in 1912. The per cent distribution of white decedents by nativity was as follows for 1913 and 1912, respectively: Other states, 39.2 each year; foreign countries, 31.2 and 31.5; California, 26.5 and 26.3; and unknown, 3.1 and 3.0. It may be added that for 1909 to 1913 the annual average per cents were as follows: Other American, 38.1; foreign, 31.7; Californian, 27.2; and unknown, 3.0.

The proportion of California decedents born in other states is very high for the counties south of Tehachapi, especially Los Angeles, the per cents being 52.4 and 52.8 for Southern California in 1913 and 1912, and no less than 54.2 and 54.4, respectively, for Los Angeles. On the other hand, the per cents born in other states were only 31.5 and 31.6 in 1913 and 1912 for the counties north of Tehachapi, being 38.6 each year for Northern California and merely 30.0 and 30.1 for Central California. The per cents born elsewhere in the United States than California were much less for the metropolitan area (25.6 and 24.9) than for the rural counties (36.9 and 37.6), and were also much less for San Francisco (22.5 and 21.3) than for the other bay counties (30.4 each year).

The proportion of foreign born decedents is particularly great only in Central California, where the per cent foreign born was 36.5 in 1913 and 36.6 in 1912, the corresponding per cents being only 31.5 and 30.6 for Northern California and merely 23.7 and 24.2 for Southern California. The per cent foreign born was 35.6 each year for Northern and Central California together, being 41.5 in 1913 and 41.8 in 1912 for the urban territory as compared with 30.3 and 29.9 for the rural districts. The per cent of foreign born decedents in San Francisco was as great as 44.1 in 1913 and 44.5 in 1912 against 37.4 and 37.6, respectively, for the group of suburban counties.

The per cent of native Californians among white decedents was greatest each year for Central California, 30.8 in 1913 and 30.7 in 1912, and next for Northern California, 25.8 and 27.1, the per cents being 29.9 and 30.1 for both of these main divisions together in contrast with only 20.7 and 19.6 for Southern California as a whole. The per cents born in California were somewhat higher for the metropolitan area, 30.2 and 31.0, than for the rural counties north of Tehachapi, 29.6 and 29.3 in 1913 and 1912, respectively.

Nativity and Cause of Death.—The following table gives numbers and per cent showing the nativity of Caucasians dying from certain principal causes in California in 1913 and 1912:

TABLE 17.—White Decedents Dying from Certain Principal Causes Classified by Nativity, with Per Cents, for California: 1913 and 1912.

Cause of death	White decedents					Per cent				
	Total	Born in California	Born in other states	Foreign born	Unknown	Born in California	Born in other states	Foreign born	Unknown	
1913.										
ALL CAUSES	36,501	9,075	14,297	11,404	1,125	26.5	39.2	31.2	3.1	
Typhoid fever	399	128	149	115	7	32.1	37.3	28.8	1.8	
Malarial fever	68	30	21	16	1	44.1	30.9	23.5	1.5	
Smallpox	15	5	9		1	33.3	60.0		6.7	
Measles	146	117	20	9		80.1	13.7	6.2		
Scarlet fever	75	45	22	7	1	60.0	29.4	9.3	1.3	
Whooping-cough	120	104	11	5		86.7	9.2	4.1		
Diphtheria and croup	179	127	38	11	3	71.0	21.2	6.1	1.7	
Influenza	216	34	124	56	2	15.3	57.4	25.9	0.9	
Plague	1		1				100.0			
Other epidemic diseases	173	50	73	49	1	28.9	42.2	28.3	0.6	
Tuberculosis of lungs	4,113	1,004	1,708	1,804	97	24.4	41.5	31.7	2.4	
Tuberculosis of other organs	796	390	240	155	11	49.0	30.1	19.5	1.4	
Cancer	2,497	277	1,204	987	29	11.1	48.2	39.5	1.2	
Other general diseases	1,662	432	663	516	51	26.0	39.9	31.0	3.1	
Meningitis	377	209	115	47	6	55.4	30.5	12.5	1.6	
Other diseases of nervous system	3,190	410	1,636	1,091	53	12.8	51.3	34.2	1.7	
Diseases of circulatory system	6,071	486	2,911	2,480	194	8.0	47.9	40.9	8.2	
Pneumonia and broncho-pneumonia	2,754	986	839	860	69	35.8	30.5	31.2	2.5	
Other diseases of respiratory system	825	175	333	300	17	21.2	40.4	36.4	2.0	
Diarrhea and enteritis, under 2 years	1,162	1,112	30	17	3	95.7	2.6	1.5	0.2	
Diarrhea and enteritis, 2 years and over	343	104	140	93	6	30.3	40.8	27.1	1.8	
Other diseases of digestive system	1,889	441	794	609	45	23.4	42.0	32.2	2.4	
Bright's disease and nephritis	2,288	310	1,125	802	51	13.5	49.2	35.1	2.2	
Childbirth	367	109	143	109	6	29.7	39.0	29.7	1.6	
Diseases of early infancy	1,334	1,330	2	1	1	99.7	0.1	0.1	0.1	
Suicide	795	111	296	270	118	14.0	37.2	34.0	14.8	
Other violence	2,942	691	947	977	327	23.5	32.2	33.2	11.1	
All other causes	1,704	468	708	518	25	26.9	41.2	30.4	1.5	
1912.										
ALL CAUSES	34,732	9,143	13,617	10,986	1,036	26.3	39.2	31.5	3.0	
Typhoid fever	416	159	128	119	10	38.2	30.8	28.6	2.4	
Malarial fever	89	28	37	20	4	31.4	41.6	22.5	4.5	
Smallpox	15	4	7	1	3	26.7	46.7	6.6	20.0	
Measles	130	109	15	6		83.9	11.5	4.6		
Scarlet fever	34	18	13	3		53.0	38.2	8.8		
Whooping-cough	178	158	15	5		88.8	8.4	2.8		
Diphtheria and croup	157	116	36	5		73.9	22.9	3.2		
Influenza	140	25	82	33		17.8	58.6	23.6		
Other epidemic diseases	177	53	77	42	5	30.0	43.5	23.7	2.8	
Tuberculosis of lungs	3,949	959	1,668	1,233	89	24.3	42.2	31.2	2.3	
Tuberculosis of other organs	734	359	210	156	9	48.9	28.6	21.3	1.2	
Cancer	2,245	239	1,087	891	28	10.6	48.4	39.7	1.3	
Other general diseases	1,541	378	630	469	64	24.5	40.9	30.4	4.2	
Meningitis	283	171	74	34	4	60.4	26.2	12.0	1.4	
Other diseases of nervous system	2,857	430	1,387	980	60	15.1	48.5	34.3	2.1	
Diseases of circulatory system	6,148	509	3,012	2,476	151	8.3	49.0	40.3	2.4	
Pneumonia and broncho-pneumonia	2,768	958	925	820	65	34.6	33.4	29.6	2.4	
Other diseases of respiratory system	833	171	303	345	14	20.5	36.4	41.4	1.7	
Diarrhea and enteritis, under 2 years	982	940	28	14		95.7	2.9	1.4		
Diarrhea and enteritis, 2 years and over	333	90	146	93	4	27.0	43.9	27.9	1.2	
Other diseases of digestive system	1,870	437	719	678	36	23.4	38.4	36.3	1.9	
Bright's disease and nephritis	2,079	248	1,081	706	45	11.9	52.0	33.9	2.2	
Childbirth	347	94	145	104	4	27.1	41.8	30.0	1.1	
Diseases of early infancy	1,300	1,297	3			99.8	0.2			
Suicide	758	113	261	260	124	14.9	34.4	34.8	16.4	
Other violence	2,734	667	860	926	301	24.2	31.2	33.6	11.0	
All other causes	1,615	413	668	518	16	25.6	41.3	32.1	1.0	

The per cents born in California were above the general averages of 26.5 in 1913 and 26.3 in 1912 for deaths from the following important causes: Early infancy, 99.7 and 99.8; diarrhea and enteritis, under 2 years, 95.7 each year; whooping-cough, 86.7 and 88.8; measles, 80.1 and 83.9; diphtheria and croup, 71.0 and 73.9; scarlet fever, 60.0 and 53.0; meningitis, 55.4 and 60.4; tuberculosis other than pulmonary, 49.0 and 48.9; pneumonia and broncho-pneumonia, 35.8 and 34.6; typhoid fever, 32.1 and 38.2; malarial fever, 44.1 and 31.4; diarrhea and enteritis, 2 years and over, 30.3 and 27.0; and childbirth, 29.7 and 27.1.

The per cents born in other states were above the general average of 39.2 in both 1913 and 1912 for deaths from the following notable causes: Influenza, 57.4 and 58.6; diseases of the nervous system other than meningitis, 51.3 and 48.5; Bright's disease and nephritis, 49.2 and 52.0; cancer, 48.2 and 48.4; diseases of the circulatory system, 47.9 and 49.0; tuberculosis of the lungs, 41.5 and 42.2; diarrhea and enteritis, 2 years and over, 40.8 and 43.9; and general diseases other than tuberculosis and cancer, 39.9 and 40.9.

The per cents foreign born were above the general averages of 31.2 and 31.5 in 1913 and 1912, respectively, for deaths from the following causes: Diseases of the circulatory system, 40.9 and 40.3; cancer, 39.5 and 39.7; diseases of the respiratory system other than pneumonia, 36.4 and 41.4; Bright's disease and nephritis, 35.1 and 33.9; diseases of the nervous system other than meningitis, 34.2 and 34.3; suicide, 34.0 and 34.3; other violence, 33.2 and 33.6; and diseases of the digestive system other than diarrhea, 32.2 and 36.3.

The per cents of unknown nativity, 3.1 in 1913 and 3.0 in 1912 for all causes, are very high indeed for suicides, 14.8 and 16.4, as well as for deaths from other violence (drowning, accidental injuries, etc.), 11.1 and 11.0, respectively.

Age Periods.—The following table gives for the several geographic divisions in 1913 and 1912 the classification of decedents by nine selected age periods, representing in a rough way, infancy, childhood, youth, five productive ages, and old age:

TABLE 18.—Deaths Classified by Age Periods, for Geographic Divisions: 1913 and 1912.

Geographic divisions	Deaths									
	All ages	Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
1913.										
THE STATE	38,569	4,336	1,681	1,048	2,273	3,762	4,215	4,670	5,037	11,627
Northern California	4,267	363	123	119	232	363	389	460	571	1,642
Coast counties	2,187	158	63	66	131	183	208	243	275	860
Interior counties	2,080	210	60	53	101	180	181	217	293	782
Central California	20,302	2,288	839	530	1,139	1,981	2,313	2,642	2,693	5,877
San Francisco	7,002	630	279	151	349	748	964	1,090	1,007	1,784
Other bay counties	4,602	548	155	116	256	393	459	580	640	1,455
Coast counties	2,431	253	80	50	120	185	206	266	312	959
Interior counties	6,267	857	325	213	414	655	684	706	734	1,679
Southern California	14,030	1,680	660	390	902	1,418	1,513	1,568	1,773	4,108
Los Angeles	9,705	1,097	442	278	618	970	1,043	1,096	1,264	2,897
Other counties	4,325	583	227	121	284	448	470	472	509	1,211
Northern and Central California	24,569	2,656	962	649	1,371	2,344	2,702	3,102	3,264	7,519
Coast counties	16,222	1,589	577	383	856	1,509	1,837	2,179	2,234	5,058
Interior counties	8,347	1,067	385	266	515	835	865	923	1,030	2,461
Metropolitan area	11,604	1,178	434	267	605	1,141	1,423	1,670	1,647	3,239
Rural counties	12,965	1,478	528	382	766	1,203	1,279	1,432	1,617	4,280
1912.										
THE STATE	36,709	3,942	1,616	977	2,252	3,636	4,062	4,489	4,747	10,968
Northern California	4,029	308	140	127	269	341	412	430	494	1,508
Coast counties	2,155	141	65	76	149	194	215	233	260	822
Interior counties	1,874	167	75	51	120	147	197	197	234	686
Central California	19,653	2,218	894	491	1,137	1,904	2,170	2,542	2,598	5,699
San Francisco	6,766	699	319	129	337	672	837	1,047	909	1,727
Other bay counties	4,470	526	202	118	277	390	423	534	597	1,433
Coast counties	2,832	260	69	62	130	176	217	257	296	876
Interior counties	6,065	733	304	182	393	666	663	704	776	1,664
Southern California	13,027	1,416	582	359	846	1,391	1,480	1,517	1,655	3,781
Los Angeles	8,800	909	376	243	555	962	1,036	1,055	1,122	2,632
Other counties	4,137	507	206	116	291	429	444	462	533	1,149
Northern and Central California	23,682	2,526	1,034	618	1,406	2,245	2,582	2,972	3,092	7,207
Coast counties	15,723	1,626	655	385	893	1,432	1,722	2,071	2,082	4,857
Interior counties	7,959	900	379	233	513	813	860	901	1,010	2,350
Metropolitan area	11,236	1,225	521	247	614	1,062	1,290	1,581	1,536	3,160
Rural counties	12,446	1,301	513	371	792	1,183	1,292	1,391	1,556	4,047

Table 18 shows that of the 38,599 deaths in 1913 and the 36,709 in 1912, those occurring at the five productive age periods from 15 to 64 totaled altogether 19,957 and 19,186, respectively; those at the period of old age, 65 years and over, totaled 11,627 and 10,988; those in infancy or the first year of life numbered 4,336 and 3,942; those in childhood, 1 to 4 years, numbered 1,631 and 1,616; and those in youth, 5 to 14 years, numbered 1,048 and 977. The death totals at successive productive ages were as follows in 1913 and 1912, respectively: 15 to 24 years, 2,273 and 2,252; 25 to 34 years, 3,762 and 3,636; 35 to 44 years, 4,215 and 4,062; 45 to 54 years, 4,670 and 4,489; and 55 to 64 years, 5,037 and 4,747.

To facilitate comparisons between geographic divisions, the absolute numbers in the preceding table have been reduced to per cents, as given in Table 19.

TABLE 19.—Per Cent Distribution of Deaths, by Age Periods, for Geographic Divisions: 1913 and 1912.

Geographic division	Per cent of deaths													
	Under 1 year		1 to 4 years		5 to 14 years		15 to 34 years		35 to 44 years		45 to 54 years		55 to 64 years	
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
THE STATE	11.2	10.8	4.2	4.4	2.7	2.7	5.9	6.1	9.8	9.9	10.9	11.1	12.1	12.2
<i>Northern California</i>	8.6	7.6	2.9	3.5	2.8	3.1	5.4	6.7	8.5	8.5	9.1	10.2	10.8	10.7
Coast counties.....	7.2	6.5	2.9	3.0	3.0	3.5	6.0	6.9	8.4	9.0	9.5	10.0	11.1	10.8
Interior counties.....	10.1	8.9	2.9	4.0	2.5	2.7	4.9	6.4	8.7	7.9	8.7	10.5	10.4	10.5
<i>Central California</i>	11.3	11.3	4.1	4.6	2.6	2.5	5.6	5.8	9.8	9.7	11.4	11.0	13.0	12.9
San Francisco.....	9.0	10.4	4.0	4.7	2.1	1.9	5.0	5.0	10.7	9.9	13.7	12.8	15.6	14.4
Other bay counties.....	11.9	11.8	3.4	4.5	2.5	2.6	5.6	6.2	8.5	8.7	10.0	9.5	12.6	11.9
Coast counties.....	10.4	11.1	3.3	3.0	2.1	2.7	4.9	5.6	7.6	7.5	8.5	9.3	10.9	11.0
Interior counties.....	13.7	12.0	5.2	5.0	3.4	3.0	6.6	6.5	10.4	10.9	10.9	11.3	11.6	11.7
<i>Southern California</i>	12.0	10.9	4.8	4.5	2.8	2.7	6.4	6.5	10.1	10.7	10.8	11.4	11.2	11.6
Los Angeles.....	11.3	10.2	4.6	4.2	2.9	2.7	6.4	6.3	10.0	10.8	10.7	11.7	11.3	11.9
Other counties.....	13.5	12.2	5.2	5.0	2.8	2.8	6.6	7.0	10.3	10.4	10.9	10.7	11.8	12.9
<i>Northern and Central California</i>	10.8	10.7	3.9	4.4	2.7	2.6	5.6	5.9	9.5	9.5	11.0	10.9	12.6	12.5
Coast counties.....	9.8	10.3	3.5	4.2	2.4	2.4	5.3	5.7	9.3	9.1	11.3	11.0	13.4	13.2
Interior counties.....	12.8	11.3	4.6	4.8	3.2	2.9	6.2	6.5	10.0	10.2	10.4	10.8	11.0	11.3
<i>Metropolitan area</i>	10.2	10.9	3.7	4.6	2.3	2.2	5.2	5.5	9.8	9.4	12.3	11.5	14.4	14.1
Rural counties.....	11.4	10.4	4.1	4.1	2.9	3.0	5.9	6.4	9.3	9.5	9.9	10.4	11.0	11.2

The per cent distribution given in Table 19 shows that the deaths at the five productive age periods from 15 to 64 years totaled 51.8 per cent of all in 1913 and 52.2 per cent in 1912; the deaths at the period of old age, 65 years and over, were 30.1 and 29.9, respectively; the deaths in infancy, or the first year of life, 11.2 and 10.8; the deaths in childhood, 1 to 4 years, 4.2 and 4.4; and the deaths in youth, 5 to 14 years, 2.7 each year. The per cent distribution of total deaths occurring at successive productive ages in 1913 and 1912, respectively, was as follows: 15 to 24 years, 5.9 and 6.1; 25 to 34 years, 9.8 and 9.9; 35 to 44 years, 10.9 and 11.1; 45 to 54 years, 12.1 and 12.2; and 55 to 64 years, 13.1 and 12.9.

The annual average per cents by five age periods covering the whole five years from 1909 to 1913, inclusive, were as follows: Productive ages, 52.4; old age, 29.5; infancy, 11.0; childhood, 4.3; and youth, 2.8.

Data on deaths by the whole nine age periods shown in Tables 18 and 19 are available only for the three years last past, the annual average per cents for 1911 to 1913 being as follows: Under 1 year, 10.8; 1 to 4 years, 4.2; 5 to 14 years, 2.7; 15 to 24 years, 6.2; 25 to 34 years, 9.9; 35 to 44 years, 11.2; 45 to 54 years, 12.1; 55 to 64 years, 13.0; and 65 years and over, 29.9.

It appears from Table 19, moreover, that 44.7 per cent of all deaths in 1913, and 45.0 per cent in 1912, occurred at under 45 years, so that 55.3 and 55.0 per cent of the deaths in 1913 and 1912, respectively, were at ages of 45 years and over.

Furthermore, the median age of California decedents, half the decedents being younger and half of them older than the age here given, was 49.36 years for 1913 and 49.16 years for 1912 as compared with 48.83 years for 1911.

Reference to Table 19 indicates, as to geographic divisions, that the per cent of deaths in infancy, or the first year of life, was very low in both 1913 and 1912 for Northern California, but was rather high for Central as well as Southern California, the per cents varying somewhat irregularly among the minor geographic divisions. The same observation may also be made as to the proportion of deaths in childhood, 1 to 4 years, while for deaths in youth, 5 to 14 years, no very marked variations appear between the several geographic divisions.

In regard to deaths at successive productive ages covering the whole period from 15 to 64 years it seems that at the ages of 15 to 24, as well as at 25 to 34 and 35 to 44 years, the per cent of deaths is relatively high for Southern California, probably on account of the great mortality from tuberculosis at these ages in this section. At 45 to 54 years as well as at 55 to 64 years, however, the per cent of deaths is particularly high for Central California, especially San Francisco. In fact, for the whole period from 35 to 64 years the per cents are much greater for the metropolitan area than for the rural counties north of Tehachapi.

The proportion of deaths at the period of old age, 65 years and over, is especially great only for Northern California among the main geographic divisions. However, among minor geographic divisions the per cent of deaths at 65 years and over was above the general average

each year not only for both the coast and interior counties of Northern California, but also for the coast counties of Central California and, in less degree, for the bay counties other than San Francisco.

Age and Cause of Death.—Tables 20 and 21 on the following pages show for California in 1913 and 1912 first, the number of deaths from certain principal causes classified by nine age periods, and second, the per cent distribution, by nine age periods, of the deaths from each of these causes.

TABLE 20.—Deaths from Certain Principal Causes Classified by Age Periods, for California: 1913 and 1912.

Cause of death	All ages	Under 1 year	Deaths									
			1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over		
1913												
ALL CAUSES	38,599	4,336	1,631	1,048	2,273	3,762	4,215	4,070	5,037	11,627		
Typhoid fever	486	2	13	44	108	111	71	42	24	21		
Malarial fever	77	10	9	7	4	12	5	4	9	17		
Smallpox	15	—	1	2	3	5	—	2	2	—		
Measles	154	44	82	17	6	1	1	—	1	2		
Scarlet fever	85	3	44	32	8	1	1	1	—	—		
Whooping-cough	128	64	35	6	—	—	—	—	—	—		
Diphtheria and croup	186	8	94	71	2	5	2	2	1	1		
Influenza	220	7	8	4	7	5	10	13	30	136		
Plague	2	—	—	—	1	—	—	—	—	—		
Other epidemic diseases	180	23	8	5	5	11	17	23	22	66		
Tuberculosis of lungs	4,536	83	48	78	722	1,189	990	688	496	319		
Tuberculosis of other organs	896	102	179	100	111	133	103	66	37	35		
Cancer	2,565	2	7	12	32	82	270	541	661	958		
Other general diseases	1,733	116	54	74	94	173	262	306	305	349		
Meningitis	405	82	99	64	48	23	35	22	21	11		
Other diseases of nervous system	3,313	64	49	53	73	110	232	476	694	1,634		
Diseases of circulatory system	6,281	12	7	54	96	263	442	760	1,157	3,490		
Pneumonia and broncho-pneumonia	2,938	374	264	77	96	171	272	293	828	843		
Other diseases of respiratory system	898	90	41	20	20	29	52	62	94	40		
Diarrhea and enteritis, under 2 years	1,270	1,076	194	—	—	—	—	—	—	—		
Diarrhea and enteritis, 2 years and over	399	—	65	26	10	12	29	24	35	138		
Other diseases of digestive system	1,965	118	65	77	117	169	249	324	294	532		
Bright's disease and nephritis	2,392	25	18	23	65	148	240	352	450	1,071		
Childbirth	395	—	—	—	106	189	100	—	—	—		
Diseases of early infancy	1,444	1,444	—	—	—	—	—	—	—	—		
Suicide	837	—	—	—	81	180	208	160	111	87		
Other violence	3,133	72	166	163	429	634	514	426	304	395		
All other causes	1,774	390	31	9	34	66	90	83	80	1,021		
1912												
ALL CAUSES	36,769	3,942	1,616	977	2,252	3,636	4,062	4,439	4,747	10,968		
Typhoid fever	454	1	35	53	122	106	61	89	19	18		
Malarial fever	101	7	12	9	7	6	15	7	16	22		
Smallpox	16	—	1	2	8	5	8	2	—	—		
Measles	134	29	75	16	7	4	2	1	—	—		
Scarlet fever	84	2	17	11	2	2	—	—	—	—		
Whooping-cough	106	110	72	8	—	—	1	—	—	—		

Diphtheria and croup.....	158	6	78	61	7	1	4	1	.....	.....
Influenza.....	146	16	4	3	2	4	2	9	12	84
Other epidemic diseases.....	186	23	17	8	2	9	20	17	22	68
Tuberculosis of lungs.....	4,316	22	41	81	699	1,135	949	683	401	296
Tuberculosis of other organs.....	812	81	154	94	115	147	103	53	40	25
Cancer.....	2,306	3	8	7	19	82	251	470	616	850
Other general diseases.....	1,621	102	40	59	99	157	250	288	263	383
Meningitis.....	308	71	86	37	32	22	20	19	10	11
Other diseases of nervous system.....	2,969	82	90	79	75	113	254	392	522	1,361
Diseases of circulatory system.....	6,373	22	17	82	105	244	451	764	1,159	3,592
Pneumonia and broncho-pneumonia.....	2,938	543	286	67	66	181	245	305	389	807
Other diseases of respiratory system.....	872	100	50	15	12	39	39	68	92	466
Diarrhea and enteritis, under 2 years.....	1,066	883	173	11	15	10	23	36	39	140
Diarrhea and enteritis, 2 years and over.....	359	85	62	68	133	189	268	325	325	517
Other diseases of digestive system.....	1,990	93	16	22	55	138	290	354	437	932
Bright's disease and nephritis.....	2,185	16	16	108	108	155	100	.....	.....	.....
Childbirth.....	363	.....	.....	.....	.....	.....	.....	.....	.....	.....
Diseases of early infancy.....	1,869	1,309	.....	.....	.....	.....	.....	.....	.....	.....
Suicide.....	808	.....	.....	1	66	196	197	170	99	74
Other violence.....	2,952	57	162	170	395	624	504	403	258	379
All other causes.....	1,682	294	85	22	47	81	80	83	78	932

From Table 21, giving the per cent distribution, it appears that the per cents of deaths in infancy, or the first year of life, were above the general averages of 11.2 and 10.8 in 1913 and 1912, respectively, for deaths from the following causes: Early infancy (premature birth, congenital debility, etc.), 100.0 per cent each year; diarrhea and enteritis, under 2 years, 84.7 and 83.6; whooping cough, 51.5 and 57.0; measles, 28.6 and 21.6; meningitis, 20.3 and 23.1; and pneumonia and broncho-pneumonia, 19.5 and 18.3.

The per cents of deaths in childhood, 1 to 4 years, were above the general averages of 4.2 and 4.4 in 1913 and 1912 for deaths from the following causes: Measles, 53.2 and 56.0; scarlet fever, 51.8 and 50.0; diphtheria and croup, 50.5 and 49.4; whooping-cough, 43.0 and 37.3; meningitis, 24.4 and 27.9; diarrhea and enteritis, 2 years and over, 25.7 and 23.7; tuberculosis of other organs than the lungs, 20.7 and 19.0; diarrhea and enteritis, under 2 years, 15.3 and 16.4; malarial fever, 11.7 and 11.9; pneumonia and broncho-pneumonia, 9.0 and 9.6; other diseases of the respiratory system, 4.7 and 5.7; and miscellaneous violence, 5.3 and 5.5.

The per cent of deaths in youth, 5 to 14 years, was above the general average of 2.7 each year for deaths from the following causes: Diphtheria and croup, 38.2 in 1913 and 38.6 in 1912; scarlet fever, 37.6 and 32.3; meningitis, 15.8 and 12.0; tuberculosis other than pulmonary, 11.5 and 11.6; measles, 11.0 and 11.9; typhoid fever, 10.1 and 11.7; malarial fever, 9.1 and 8.9; miscellaneous violence (accidental injuries, etc.), 6.2 and 5.8; whooping-cough, 4.7 and 4.2; diarrhea and enteritis, 2 years and over, 7.0 and 3.1; other diseases of the digestive system, 3.8 and 3.4; and general diseases other than tuberculosis and cancer, 4.3 and 3.6.

The proportion of deaths occurring at 15 to 24 years exceeded the general averages of 5.9 and 6.1 for deaths from important causes as follows: Childbirth, 26.8 and 29.8; typhoid fever, 24.8 and 26.9; tuberculosis of the lungs, 15.9 and 16.2; tuberculosis of other organs, 12.8 and 14.1; miscellaneous violence, 13.7 and 13.4; suicide, 9.7 and 8.2; and diseases of the digestive system other than diarrhea, 5.9 and 6.7.

The proportion of deaths occurring at 25 to 34 years surpassed the general averages of 9.8 and 9.9 for deaths from the following important causes: Childbirth, 47.9 and 42.7; tuberculosis of the lungs, 26.2 and 26.3; typhoid fever, 25.5 and 23.3; suicide, 22.7 and 24.4; other violence, 20.2 and 21.1; and tuberculosis other than pulmonary, 15.4 and 18.1.

The proportion of deaths occurring at 35 to 44 years exceeded the general averages of 10.9 and 11.1 for deaths from the following causes: Childbirth, 25.3 and 27.5; suicide, 24.8 and 24.6; pulmonary tuberculosis, 21.8 and 22.0; miscellaneous violence, 16.4 and 17.1; typhoid fever, 16.3 and 13.4; general diseases other than tuberculosis and cancer (*i. e.*, diabetes, alcoholism, etc.), 15.1 and 15.4; diseases of the digestive system other than diarrhea, 12.5 and 13.6; and tuberculosis other than pulmonary, 11.9 and 12.7.

The proportion of deaths occurring at 45 to 54 years surpassed the general averages of 12.1 and 12.2 for deaths from the following important causes: Cancer, 21.1 and 20.4; suicide, 19.1 and 21.2; general diseases other than tuberculosis and cancer, 17.7 and 17.8; diseases of the digestive system other than diarrhea, 16.2 and 16.4; pulmonary tuberculosis, 15.2 and 15.8; Bright's disease and nephritis, 14.7 and

16.2; diseases of the nervous system other than meningitis, 14.4 and 13.3; and miscellaneous violence, 13.6 and 13.7.

The proportion of deaths occurring at 55 to 64 years exceeded the general averages of 13.1 and 12.9 for deaths from the following causes: Cancer, 25.8 and 26.7; Bright's disease and nephritis, 18.8 and 20.0; diseases of the circulatory system, 18.4 and 18.2; diseases of the nervous system other than meningitis, 18.2 and 17.6; general diseases other than tuberculosis and cancer, 17.6 and 16.2; and diseases of the digestive system other than diarrhea, 14.7 and 16.4.

The per cents of deaths at the period of old age, 65 years and over, were above the general averages of 30.1 and 29.9 in 1913 and 1912 for deaths from the following important causes: Influenza, 61.8 and 64.4; miscellaneous causes, including "old age" or senility, 57.6 and 57.2; diseases of the circulatory system, 55.6 and 54.9; diseases of the respiratory system other than pneumonia, 53.0 and 53.4; diseases of the nervous system other than meningitis, 49.3 and 46.0; Bright's disease and nephritis, 44.8 and 42.7; diarrhea and enteritis, 2 years and over, 37.4 and 39.0; and cancer, 37.3 and 36.9.

MARITAL CONDITION OF DECEDENTS.

Geographic Divisions.—Table 22 presents, by numbers and per cents, the marital condition of male and female decedents aged 15 years and over for the several geographic divisions in 1913 alone, children under 15 years of age being excluded from the analysis of decedents according to marital condition.

TABLE 22.—Deaths of Males and Females 15 Years and Over Classified by Marital Condition, with Per Cents, for Geographic Divisions: 1913.

Sex and geographic division	Deaths 15 years and over						Per cent				
	Total	Single	Married	Widowed	Divorced	Unknown	Single	Married	Widowed	Divorced	Unknown
Males.											
THE STATE	19,946	6,448	8,837	2,966	290	1,405	32.3	44.3	14.9	1.5	7.0
Northern California	2,528	989	910	397	48	234	37.1	36.0	15.7	1.9	9.3
Coast counties	1,276	457	494	210	23	92	35.8	38.7	16.5	1.8	7.2
Interior counties	1,252	482	416	187	25	142	38.5	33.2	14.9	2.0	11.4
Central California	10,598	3,641	4,479	1,524	175	779	34.4	42.3	14.4	1.6	7.3
San Francisco	3,774	1,387	1,540	538	63	246	36.7	40.8	14.3	1.7	6.5
Other bay counties	2,264	633	1,114	386	30	101	28.0	49.2	17.0	1.3	4.5
Coast counties	1,249	401	566	208	22	57	32.1	45.3	16.2	1.8	4.6
Interior counties	3,311	1,220	1,259	397	60	375	36.9	38.0	12.0	1.8	11.3
Southern California	6,820	1,868	3,448	1,045	67	392	27.4	50.6	15.3	1.0	5.7
Los Angeles	4,638	1,227	2,400	751	47	213	26.5	51.7	16.2	1.0	4.6
Other counties	2,182	641	1,048	294	20	179	29.4	48.0	13.5	0.9	8.2
Northern and Central California	13,126	4,580	5,389	1,921	223	1,013	34.9	41.1	14.6	1.7	7.7
Coast counties	8,563	2,878	3,714	1,337	136	496	33.6	43.4	15.6	1.6	5.8
Interior counties	4,563	1,702	1,675	584	85	517	37.3	36.7	12.8	1.9	11.3
Metropolitan area	6,088	2,020	2,654	924	93	347	33.5	44.0	15.3	1.5	5.7
Rural counties	7,088	2,560	2,735	997	130	666	36.1	38.6	14.1	1.8	9.4
Females.											
THE STATE	11,638	1,427	5,579	4,322	150	160	12.3	47.9	37.1	1.3	1.4
Northern California	1,129	131	502	454	18	29	11.6	44.5	40.2	1.1	2.6
Coast counties	624	90	276	289	4	15	14.4	44.2	38.3	0.7	2.4
Interior counties	505	41	226	215	9	14	8.1	44.7	42.6	1.8	2.8
Central California	6,047	727	2,892	2,273	90	65	12.0	47.8	37.6	1.5	1.1
San Francisco	2,168	278	996	837	41	16	12.8	46.0	38.6	1.9	0.7
Other bay counties	1,519	168	660	654	25	12	11.1	43.4	43.1	1.6	0.8
Coast counties	799	110	392	278	9	10	13.8	49.1	34.8	1.1	1.2
Interior counties	1,561	171	844	504	15	27	10.9	54.1	32.3	1.0	1.7
Southern California	4,462	569	2,185	1,505	47	66	12.7	49.0	35.7	1.1	1.5
Los Angeles	3,250	418	1,596	1,153	38	45	12.8	49.1	35.5	1.2	1.4
Other counties	1,212	151	589	442	9	21	12.5	48.6	36.5	0.7	1.7
Northern and Central California	7,176	858	3,394	2,727	103	94	12.0	47.3	38.0	1.4	1.3
Coast counties	5,110	646	2,324	2,008	79	53	12.6	45.5	39.3	1.6	1.0
Interior counties	2,066	212	1,070	719	24	41	10.2	51.8	34.8	1.2	2.0
Metropolitan area	3,687	446	1,656	1,491	66	28	12.1	44.9	40.4	1.8	0.8
Rural counties	3,489	412	1,738	1,236	37	66	11.8	49.8	35.4	1.1	1.9

Exclusive of children under 15 years of age, the male decedents in California in 1913 totaled 19,946, and the females 11,638. The marital condition of the male decedents aged 15 years and over was: Single, 6,448; married, 8,837; widowed, 2,966; divorced, 290; and unknown, 1,405. For the female decedents 15 years and over the distribution was: Single, 1,427; married, 5,579; widowed, 4,322; divorced, 150; and unknown, 160. The per cent distribution by marital condition for male and female decedents, respectively, was as follows: Single, 32.3 and 12.3; married, 44.3 and 47.9; widowed, 14.9 and 37.1; divorced, 1.5 and 1.3; and unknown, 7.0 and 1.4. The proportion married was not far from the same among men as among women (44.3 against

47.9). However, the per cent single was much greater among men than among women (32.3 against 12.3) while, on the other hand, the per cent widowed was much less for men than for women (14.9 against 37.1).

The per cent single among men was much higher for the territory north of Tehachapi than for that to the south, being 37.1 for Northern California and 34.4 for Central California or 34.9 for both together, as compared with only 27.4 for Southern California. The per cent for single men was somewhat less for the metropolitan area (33.5) than for the rural counties north of Tehachapi (36.1), but was much greater for San Francisco (36.7) than for the other bay counties (28.0).

The per cent single among women varies comparatively little for various geographic divisions, being only slightly greater for Southern California (12.7) than for Northern and Central California together (12.0), for the metropolitan area (12.1) than for the rural counties north of Tehachapi (11.8), and for San Francisco (12.8) than for the adjacent suburban counties (11.1).

The proportion of married men among decedents was considerably greater for the territory south of Tehachapi than for that to the north, the per cent being 50.6 for Southern California against 42.3 for Central California and only 36.0 for Northern California, or 41.1 for all north of Tehachapi. The per cent of married men was 44.0 for the metropolitan area against only 38.6 for the rural counties of Northern and Central California. However, the per cent was merely 40.8 for San Francisco as compared with 49.2 for the adjoining bay counties.

The proportion of married women varies relatively little among geographic divisions, the per cent being slightly greater for Southern California (49.0) than for the territory north of Tehachapi (47.3), slightly less for the metropolitan area (44.9) than for the rural counties (49.8), and slightly greater for the metropolis proper (46.0) than for the adjoining suburbs (43.4).

The proportion of widowers among decedents was somewhat greater for the territory south of Tehachapi (15.3) than for that to the north (14.6) as well as for the metropolitan area (15.3) than for the rural counties (14.1), but was much less for San Francisco alone (14.3) than for the group of other bay counties (17.0).

The per cent of widows among decedents was 40.2 for Northern California and 37.6 for Central California, or 38.0 for both together as compared with 35.7 for Southern California. The per cent was 40.4 for the metropolitan area against 35.4 for the rural counties north of Tehachapi, but was only 38.6 for the metropolis proper against 43.1 for the suburban counties.

Causes of Death.—Table 23 presents numbers and per cents showing the deaths from twelve selected causes of males and females 15 years and over classified by marital condition for California as a whole in 1913.

TABLE 23.—Deaths from Selected Causes of Males and Females 15 Years and Over Classified by Marital Condition, with Per Cents, for California: 1913.

Sex and cause of death	Deaths 15 years and over						Per cent				
	Total	Single	Married	Widowed	Divorced	Unknown	Single	Married	Widowed	Divorced	Unknown
Males.											
ALL CAUSES	19,946	6,448	8,837	2,966	290	1,405	32.3	44.3	14.9	1.5	7.0
Typhoid fever	266	119	118	0	3	17	44.7	44.4	3.4	1.1	6.4
Other epidemic diseases ..	235	68	111	39	1	16	29.0	47.2	16.6	0.4	6.8
Tuberculosis	3,299	1,634	1,225	199	38	203	49.5	37.1	6.0	1.2	6.2
Cancer	1,229	267	661	203	15	53	21.8	56.2	16.5	1.2	4.3
Diseases of—											
Nervous system	1,933	450	1,022	346	34	86	23.2	52.7	17.9	1.8	4.4
Circulatory system	3,887	926	1,907	868	64	222	23.8	46.5	22.3	1.7	5.7
Respiratory system	1,033	535	719	291	33	115	31.6	42.5	17.2	1.9	6.8
Digestive system	1,215	389	592	162	19	53	32.0	48.7	13.3	1.6	4.4
Bright's disease and nephritis	1,499	381	735	288	19	76	25.4	49.0	19.2	1.3	5.1
Suicide	682	236	267	48	17	114	34.6	39.2	7.0	2.5	16.7
Other violence	2,286	965	825	140	23	343	41.8	36.1	6.1	1.0	15.0
All other causes	1,717	488	725	373	24	107	28.4	42.2	21.7	1.4	6.3
Females.											
ALL CAUSES	11,638	1,427	5,579	4,322	150	160	12.3	47.9	37.1	1.3	1.4
Typhoid fever	111	32	65	11	1	2	28.8	58.6	9.9	0.9	1.8
Other epidemic diseases ..	206	26	83	85	9	3	12.6	40.3	41.3	4.4	1.4
Tuberculosis	1,560	412	910	198	23	17	26.4	58.3	12.7	1.5	1.1
Cancer	1,315	123	686	477	16	13	9.3	52.2	36.3	1.2	1.0
Diseases of—											
Nervous system	1,371	143	538	661	11	18	10.4	39.3	48.2	0.8	1.3
Circulatory system	2,321	182	926	1,160	25	28	7.8	39.9	50.0	1.1	1.2
Respiratory system	1,047	111	413	499	6	18	10.6	39.4	47.7	0.6	1.7
Digestive system	768	82	387	274	11	14	10.7	50.4	35.7	1.4	1.8
Bright's disease and nephritis	827	73	400	336	11	7	8.8	48.4	40.6	1.3	0.9
Suicide	155	27	89	21	10	8	17.4	57.4	13.5	6.5	5.2
Other violence	416	79	199	120	9	9	19.0	47.8	28.8	2.2	2.2
All other causes	1,541	137	883	480	18	23	8.9	57.3	31.1	1.2	1.5

It appears from Table 23 that the per cent of single men among decedents was above the general average of 32.3 for deaths from tuberculosis, 49.5; typhoid fever, 44.7; miscellaneous violence, 41.8; and suicide, 34.6.

The per cent single among women was likewise above the general average of 12.3 for these same causes as follows: Typhoid fever, 28.8; tuberculosis, 26.4; miscellaneous violence 19.0; and suicide, 17.4.

The per cent of married men among decedents, as compared with the average of 44.3, was particularly high for the following causes of death: Cancer, 56.2; diseases of the nervous system, 52.7; Bright's disease and nephritis, 49.0; diseases of the digestive system, 48.7; and diseases of the circulatory system, 46.5.

The per cent of married women among decedents, in comparison with the average of 47.9, was especially great for the following causes:

Typhoid fever, 58.6; tuberculosis, 58.3; suicide, 57.4; sundry miscellaneous causes, 57.3; cancer, 52.2; diseases of the digestive system, 50.4; and Bright's disease and nephritis, 48.4.

The per cent of widowers exceeded the average of 14.9 in the following important instances: Diseases of the circulatory system, 22.3; sundry miscellaneous causes, 21.7; Bright's disease and nephritis, 19.2; diseases of the nervous system, 17.9; diseases of the respiratory system, 17.2; and cancer, 16.5.

The per cent of widows surpassed the average of 37.1 in notable cases as follows: Diseases of the circulatory system, 50.0; diseases of the nervous system, 48.2; diseases of the respiratory system, 47.7; and Bright's disease and nephritis, 40.6.

OCCUPATIONS AND CAUSES OF DEATH.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown, the figures being for the whole State in both 1913 and 1912:

TABLE 24.—Deaths 15 Years and Over Classified by Sex and Occupation, with Per Cents by Sex, for California: 1913 and 1912.

	Total		Deaths Male		Female		Per cent male		Per cent female	
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
15 YEARS AND OVER	31,584	30,174	19,946	19,001	11,638	11,173	63.2	63.0	36.8	37.0
Occupation reported.....	18,231	17,415	17,045	16,391	1,186	1,024	93.5	94.1	6.5	5.9
No gainful occupation.....	13,353	12,759	2,901	2,610	10,452	10,149	21.7	20.5	78.3	79.5

Exclusive of children under 15 years of age, who would all be without gainful occupation in statistical terminology, the decedents aged 15 years and over totaled 31,584 in 1913 and 30,174 in 1912. The males numbered 19,946 and 19,001 in 1913 and 1912, and the females numbered 11,638 and 11,173, respectively. Among all decedents aged 15 years and over the per cents male were 63.2 in 1913 and 63.0 in 1912, while the per cents female were 36.8 and 37.0, respectively.

Of the decedents 15 years and over for whom occupations were reported (totaling 18,231 and 17,415 in 1913 and 1912, respectively), the males numbered 17,045 in 1913 and 16,391 in 1912 while the females numbered only 1,186 and 1,024, respectively. Among decedents reporting occupations the per cents male in 1913 and 1912 were no less than 93.5 and 94.1 while the per cents female were merely 6.5 and 5.9.

Of the decedents 15 years and over without gainful occupation (totaling 13,353 and 12,759 in 1913 and 1912, respectively), the men were merely 2,901 in 1913 and 2,610 in 1912, while the women (housewives and others not working for wages) were no less than 10,452 and 10,149, respectively. Among decedents without gainful occupation the per cents male in 1913 and 1912, respectively, were only 21.7 and 20.5, while the per cents female were as great as 78.3 and 79.5.

Main Kinds of Occupation.—The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupations, the data being for California in both 1913 and 1912 with additional per cents for 1911:

TABLE 25.—Deaths of Males 15 Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: 1913 and 1912.

Kind of occupation	Males 15 years and over				
	Deaths		Per cent		
	1913	1912	1913	1912	1911
ALL OCCUPATIONS.....	17,045	16,391	100.0	100.0	100.0
Professional	961	939	5.6	5.7	5.0
Clerical and official.....	1,334	1,212	7.8	7.4	6.9
Mercantile and trading.....	1,302	1,303	7.6	8.0	7.2
Public entertainment	407	372	2.4	2.3	2.2
Personal service, police and military.....	599	450	3.3	2.7	3.2
Laboring and servant.....	3,597	3,420	21.1	20.9	22.0
Manufacturing and mechanical industry.....	3,486	3,349	20.5	20.4	20.7
Agriculture, transportation, and other outdoor.....	5,278	5,208	31.0	31.8	32.0
All other occupations.....	111	138	0.7	0.8	0.8

For 1913 and 1912, respectively, the male decedents for whom occupations were shown totaled 17,045 and 16,391 and were distributed by main kinds of occupations as follows: Agriculture, transportation and other outdoor pursuits, 5,278 and 5,208 or 31.0 and 31.8 per cent; laboring and servant work, 3,597 and 3,420 or 21.1 and 20.9 per cent; manufacturing and mechanical industry, 3,486 and 3,349 or 20.5 and 20.4 per cent; mercantile and trading occupations, 1,302 and 1,303 or 7.6 and 8.0 per cent; clerical and official positions, 1,334 and 1,212 or 7.8 and 7.4 per cent; professional callings, 961 and 939 or 5.6 and 5.7 per cent; and various minor kinds of occupations, altogether 1,087 and 960 or 6.4 and 5.8 per cent.

Causes of Death and Specific Occupations.—Table 26 presents in detail the per cent distribution, by selected causes, of deaths of males and females 15 years and over classified by occupation for California in both 1913 and 1912. The per cent distribution thus shown is presented not only for the main kinds of occupations but also, under each main kind of occupation, for every specific occupation showing annually at least 50 deaths in the State as a whole. It may be noted that the absolute numbers on which are based the per cents summarized here in Table 26 may be found in Tables 33 and 34, *post*, which are presented for reference among detailed or general tables following this text discussion of deaths.

TABLE 26.—Per Cent Distribution, by Selected Causes, of Deaths of Males and

Occupation (Showing annually at least 50 deaths)	Deaths		Per cent of deaths							
	1913	1912	Typhoid fever		Other epi- demic dis- eases		Tubercu- losis		Cancer	
			1913	1912	1913	1912	1913	1912	1913	1912
15 YEARS AND OVER	31,584	30,174	1.2	1.2	1.4	1.3	15.4	15.4	8.0	7.6
Males	19,946	19,001	1.3	1.4	1.2	1.1	16.6	16.1	6.2	5.7
All occupations	17,045	16,391	1.4	1.5	1.1	1.2	17.2	16.8	6.2	5.9
Professional	961	939	1.5	1.0	1.1	0.7	16.3	16.6	6.6	6.9
Architects, artists and teachers of art	51	50				1.7	25.5	15.2	3.9	11.8
Clergymen	148	109	0.7		2.0		17.6	10.1	6.8	7.3
Engineers and surveyors	224	250	3.6	2.8	0.9		21.0	18.4	6.7	4.8
Lawyers	144	133	2.1		0.7	0.7	7.6	14.3	6.9	7.5
Musicians and teachers of music	64	81		1.2	1.6		20.3	40.7	6.3	7.4
Physicians and surgeons	155	147	0.6	0.7	0.6	2.0	12.3	7.5	3.9	6.8
Teachers (school)	58				1.7		20.7		8.6	
Others of this class	117	160	0.9		1.7	1.3	13.7	16.9	9.4	7.5
Clerical and official	1,334	1,212	0.8	0.7	0.4	1.0	21.8	20.9	6.2	5.4
Bookkeepers, clerks and copyists	648	570	0.9	0.7	0.5	1.2	29.5	31.4	5.1	3.9
Bankers, brokers and officials of companies	230	193	1.3	1.0	0.4	2.1	8.7	8.3	9.1	5.7
Collectors, auctioneers and agents	329	339	0.6	0.6		0.3	18.9	12.4	6.7	8.0
Others of this class	127	110		0.9	0.8		14.2	15.5	5.5	4.6
Mercantile and trading	1,302	1,303	1.5	1.2	0.8	0.6	14.0	14.4	7.3	7.5
Apothecaries, pharmacists, etc.	66	67			3.0	1.5	18.2	13.4	7.6	4.5
Commercial travelers	60						21.7		6.7	
Merchants and dealers	803	819	1.4	1.4	1.1	0.7	8.8	10.1	8.6	8.4
Hucksters and peddlers	50	52					24.0	19.2	2.0	
Others of this class	323	365	1.9	1.4	0.3	0.3	23.2	23.6	4.9	7.1
Public entertainment	407	372	1.7	1.4	0.5	0.8	18.7	15.6	9.6	4.0
Hotel and boarding-house keepers	109	100	1.8	2.0			17.4	12.0	12.9	4.0
Saloonkeepers, liquor dealers, bartenders and restaurant keepers	298	272	1.7	1.1	0.7	1.1	19.1	16.9	8.4	4.0
Personal service, police, and military	569	450	1.2	2.0	1.4	1.6	15.5	16.0	5.6	5.1
Barbers and hairdressers	122	100	2.5	4.0	0.8	1.0	22.9	24.0	5.7	5.0
Janitors and sextons	73		1.4		2.7		12.3		4.1	
Policemen, watchmen and detec- tives	124	94	0.8	1.1	0.8	2.1	8.1	6.4	8.1	7.4
Soldiers, sailors and marines (U. S.)	140	128	0.7	1.6	1.4	1.6	12.1	11.7	5.7	3.9
Others of this class	110	128	0.9	1.6	1.8	1.6	21.8	21.1	3.6	4.7
Laboring and servant	3,597	3,420	1.8	1.9	1.0	1.0	22.8	21.2	4.9	4.2
Laborers (not agricultural)	3,179	3,005	2.0	2.0	1.1	1.1	22.3	20.7	4.8	4.4
Servants	418	415	0.7	1.5	0.5	0.7	27.3	24.6	5.5	3.1
Manufacturing and mechanical industry	3,486	3,349	1.0	1.2	0.9	1.0	16.7	17.3	5.9	5.9
Bakers	92	89	1.1	4.5	1.1		20.7	18.0	5.4	2.2
Blacksmiths	194	177	2.1	0.6	2.1	2.3	14.9	12.4	7.7	6.8
Boot and shoe makers	105	96		2.1	1.0		10.5	9.4	9.5	6.2
Butchers	130	113	0.8	1.8	1.5		22.3	16.8	2.3	5.3
Cabinetmakers and upholsterers	63	59		1.7	3.2	1.7	12.7	11.9	3.2	16.9
Carpenters	652	685	1.1	0.9	0.9	1.6	13.5	12.1	7.5	7.9
Compositors, printers and press- men	109	98			1.8		18.3	28.6	6.4	6.1
Engineers and firemen (not loco- motive)	208	201	1.4	0.5		1.5	15.4	17.4	4.8	5.0
Iron and steel workers	140	168	1.4	2.4		1.2	22.2	17.9	5.0	4.8
Machinists	196	170		2.9		1.2	18.4	19.4	7.7	7.1
Masons (brick and stone)	85	89	1.2		1.2	1.1	15.3	15.7	9.4	9.0
Painters, glaziers and varnishers	273	255	1.1	1.6	1.1	1.2	18.7	23.1	3.7	3.5
Plumbers and gas and steam fitters	82	94		1.1			30.5	31.9		2.1
Tailors	128	134			0.8		25.8	26.9	3.9	3.0
Others of this class	1,029	921	1.2	1.1	0.8	0.7	15.3	17.1	5.7	6.1

Females 15 Years and Over, Classified by Occupation, for California: 1913 and 1912.

Per cent of deaths															
Diseases of nervous system		Diseases of circulatory system		Diseases of respiratory system		Diseases of digestive system		Bright's disease and nephritis		Suicide		Other violence		All other causes	
1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
10.5	9.4	19.6	20.7	8.7	9.2	6.8	6.7	7.4	7.1	2.6	2.6	8.6	8.5	10.3	10.8
9.7	9.0	19.4	20.6	8.5	9.0	6.1	6.3	7.5	7.3	3.4	3.6	11.5	11.3	8.6	8.6
9.5	8.6	19.1	20.2	8.5	8.8	6.1	6.4	7.3	7.3	3.4	3.5	11.7	11.5	8.5	8.3
10.1	12.6	21.5	21.9	7.9	6.1	5.6	5.9	9.2	9.7	2.9	2.9	8.1	8.4	9.2	7.3
7.9	8.5	17.7	20.3	5.9	5.1	3.9	8.5	13.7	6.8	3.9	6.8	7.8	8.5	9.8	6.8
7.4	11.9	23.0	20.2	19.8	12.9	6.7	8.3	9.5	12.8	-----	0.9	4.0	4.6	11.5	11.0
8.0	11.2	12.9	22.0	7.1	3.6	4.9	3.2	4.5	7.6	3.6	4.0	18.8	17.2	8.0	5.2
17.4	14.3	23.6	27.1	6.9	6.8	4.9	4.5	11.8	15.0	4.9	1.5	2.8	3.0	10.4	5.3
6.2	6.2	25.0	9.9	7.8	8.6	1.6	9.9	9.4	3.7	4.7	3.7	6.2	6.2	10.9	2.5
9.7	18.4	29.7	25.9	10.3	5.4	6.5	7.5	12.9	12.2	1.3	0.7	4.5	2.7	7.7	10.2
15.5	-----	25.9	-----	1.7	-----	5.2	-----	10.3	-----	-----	-----	3.5	-----	6.9	-----
9.4	13.1	20.5	21.9	7.7	4.4	8.6	5.0	6.8	8.1	5.1	3.7	7.7	8.1	8.5	10.0
10.6	9.2	17.4	22.5	7.4	7.6	6.4	7.9	8.4	8.7	4.3	4.4	7.4	5.9	8.9	5.8
9.7	7.7	14.2	19.0	8.0	7.5	5.9	7.9	6.2	6.7	4.6	4.2	6.0	5.1	9.4	4.7
10.9	10.9	24.3	25.4	4.3	10.9	8.7	6.2	10.9	10.4	3.5	5.7	8.3	6.7	9.6	6.7
10.9	10.3	17.9	25.6	8.5	7.1	5.2	8.0	10.0	9.4	4.6	5.0	8.5	5.3	8.2	8.0
13.4	10.0	19.7	26.4	7.1	3.6	7.9	10.9	11.0	13.6	3.1	1.8	10.2	10.0	7.1	2.7
11.5	8.5	24.4	25.7	7.6	7.3	6.4	7.2	7.8	8.9	3.5	3.9	6.8	7.0	8.4	7.8
13.6	7.5	22.7	28.3	7.6	3.0	8.0	6.0	6.1	16.4	3.0	4.5	4.6	7.5	10.6	7.4
8.3	-----	18.3	-----	5.0	-----	5.0	-----	3.3	-----	5.0	-----	15.0	-----	11.7	-----
13.3	9.0	25.9	29.1	7.3	8.1	6.9	7.7	9.0	7.9	4.1	3.7	4.6	5.6	9.0	8.3
2.0	3.9	22.0	19.2	8.0	7.7	-----	5.8	2.0	11.6	4.0	1.9	20.0	19.2	16.0	11.5
8.7	8.2	22.6	18.3	8.7	6.3	7.1	6.6	6.8	9.3	1.9	4.7	9.0	8.2	4.9	6.0
8.9	11.0	13.5	16.9	8.1	8.3	8.4	11.6	9.3	7.0	4.9	5.7	6.6	6.7	9.8	11.0
6.4	14.0	16.5	23.0	7.3	8.0	7.3	12.0	13.8	3.0	3.7	8.0	3.7	6.0	9.2	8.0
9.7	9.9	12.4	14.7	8.4	8.5	8.7	11.4	7.7	8.5	5.4	4.8	7.7	7.0	10.1	12.1
10.2	8.0	19.1	18.0	9.3	9.1	5.8	7.8	8.3	7.1	3.7	5.8	11.8	9.1	8.1	10.4
6.6	10.0	13.1	16.0	5.7	6.0	6.6	4.0	8.2	5.0	6.6	6.0	12.3	6.0	9.0	13.0
9.6	-----	26.0	-----	12.3	-----	1.4	-----	11.0	-----	-----	-----	11.0	-----	8.2	-----
16.1	9.6	21.8	19.1	10.5	13.8	2.4	10.6	8.9	9.6	4.0	4.3	13.7	9.6	4.8	6.4
7.9	8.6	21.4	16.4	12.9	6.2	7.9	10.1	7.9	4.7	2.9	8.6	11.4	13.3	7.8	13.3
10.9	4.7	15.5	20.3	5.5	10.9	9.1	6.2	6.4	9.4	3.6	3.9	10.0	7.0	10.9	8.6
6.8	6.5	15.7	15.6	9.6	9.6	5.7	5.7	4.9	5.5	4.1	4.1	15.6	17.1	7.1	7.6
7.0	6.4	15.0	15.4	9.9	9.7	5.6	5.7	4.8	5.3	4.0	3.8	16.5	18.0	7.0	7.5
5.0	7.2	20.3	17.1	7.7	8.4	6.7	5.3	5.0	6.8	5.0	6.5	8.6	10.6	7.7	8.2
10.6	9.4	21.0	21.1	7.6	7.7	6.0	6.6	7.6	7.9	3.3	3.8	10.8	9.2	8.6	8.9
8.7	13.5	17.4	24.7	4.3	3.4	5.4	9.0	8.7	5.6	6.5	4.5	10.9	6.7	9.8	7.9
12.9	10.7	22.7	23.7	5.1	12.4	4.6	6.8	5.7	6.8	-----	3.4	8.8	4.5	13.4	9.6
11.4	9.4	25.7	27.1	5.7	9.4	3.8	7.3	10.5	14.6	4.8	4.1	5.7	1.0	11.4	9.4
10.0	6.2	18.5	17.7	9.2	9.7	6.9	15.0	8.5	8.0	7.7	2.7	5.4	8.8	6.9	8.0
7.9	11.8	23.8	22.0	15.9	1.7	9.5	6.8	7.9	8.5	6.4	5.1	6.3	5.1	3.2	6.8
10.0	10.4	23.2	24.2	6.1	9.1	6.4	5.0	7.7	8.2	3.4	2.6	10.9	9.3	9.3	9.6
14.7	4.1	16.5	17.3	6.4	10.2	8.3	10.2	9.2	5.1	2.8	3.1	7.3	3.1	8.3	12.2
13.0	6.5	16.8	20.4	6.7	5.5	8.7	7.0	7.2	7.9	3.4	3.0	15.9	16.9	6.7	8.4
9.3	5.9	12.1	25.0	10.0	8.3	7.1	5.3	6.4	6.5	2.9	3.6	17.9	14.3	5.7	4.8
6.1	9.4	16.3	13.5	11.7	4.1	7.1	4.1	3.1	7.7	5.6	5.3	16.3	17.1	7.7	8.2
9.4	7.9	23.5	20.2	8.2	4.5	2.3	9.0	10.6	11.2	1.2	2.3	5.9	4.5	11.8	14.6
11.4	9.8	18.7	18.8	8.4	8.2	5.1	5.5	5.5	8.6	1.8	5.5	11.3	7.9	13.2	6.3
8.5	9.6	15.9	14.9	4.9	7.4	6.1	3.2	6.1	6.4	6.1	4.3	14.6	13.8	7.3	5.3
11.7	8.9	24.2	18.7	5.5	6.7	3.9	6.0	7.0	8.2	5.5	8.2	3.9	5.2	7.8	8.2
10.8	10.1	23.1	20.4	8.5	7.3	5.6	7.3	8.8	7.6	2.4	3.6	10.6	8.9	7.2	9.8

TABLE 26.—Per Cent Distribution, by Selected Causes, of Deaths of Males
1913 and 1912

Occupation (Showing annually at least 50 deaths)	Deaths		Per cent of deaths							
			Typhoid fever		Other epi- demic dis- eases		Tubercu- losis		Cancer	
	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
Agriculture, transportation and other outdoor.....	5,278	5,208	1.6	1.6	1.5	1.6	13.5	13.2	6.7	6.8
Draymen, hackmen and team- sters.....	445	408	2.0	1.5	0.9	1.0	19.6	20.1	4.1	3.9
Farmers, planters and farm laborers.....	2,275	2,570	1.5	1.9	2.1	2.1	11.1	9.8	8.0	7.8
Gardeners, florists, nurserymen and vine growers.....	197	193	1.0	1.6	0.5	-----	12.7	15.5	7.6	8.8
Livery stable keepers and hostlers.....	63	56	-----	-----	-----	1.8	7.9	10.7	1.6	7.2
Lumbermen and raftsmen.....	129	139	2.3	2.2	2.3	1.4	10.1	11.5	8.5	8.6
Miners and quarrymen.....	764	728	0.6	0.7	1.2	1.0	16.1	18.3	5.5	6.0
Sailors, pilots and oystermen.....	244	244	3.3	1.6	0.8	0.8	16.4	10.2	5.3	4.9
Steam railroad employees.....	379	363	1.6	1.4	0.3	1.6	17.9	17.6	4.5	5.8
Stock raisers, herders and drovers.....	452	216	2.0	1.4	2.0	0.5	12.0	12.0	7.1	10.6
Others of this class.....	230	291	2.1	2.4	0.6	1.4	13.9	17.9	6.1	4.5
All other occupations.....	111	138	1.8	0.7	4.5	2.2	21.7	21.7	6.3	4.4
No occupation.....	2,901	2,610	0.8	1.0	1.7	0.7	12.5	12.4	6.1	4.4
<i>Females</i>	11,638	11,173	1.0	0.9	1.8	1.5	13.4	14.1	11.3	10.8
All occupations.....	1,183	1,024	1.1	1.9	1.3	1.1	17.2	23.4	11.0	8.2
Teachers in schools.....	110	101	1.8	2.0	1.8	3.0	23.6	21.8	16.4	12.9
Bookkeepers, clerks and copyists.....	63	68	4.8	1.5	4.8	2.9	27.0	39.7	7.9	7.4
Nurses and midwives.....	82	85	2.5	5.9	-----	-----	8.5	20.0	18.3	14.1
Servants.....	279	240	0.4	1.7	1.1	0.4	17.6	22.1	7.9	4.6
Dressmakers and seamstresses.....	95	84	-----	2.4	-----	1.2	8.4	29.8	19.0	10.7
All other occupations.....	557	446	0.9	1.4	1.3	0.9	17.4	21.5	9.5	7.6
No occupation.....	10,452	10,149	0.9	0.8	1.8	1.6	13.0	13.2	11.3	11.0

and Females 15 Years and Over, Classified by Occupation, for California:
—Continued.

Per cent of deaths															
Diseases of nervous system		Diseases of circulatory system		Diseases of respiratory system		Diseases of digestive system		Bright's disease and nephritis		Suicide		Other violence		All other causes	
1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912	1913	1912
9.6	8.3	19.4	21.1	9.0	10.3	6.2	5.9	7.9	7.1	2.6	2.4	12.8	12.9	9.2	8.8
7.6	7.3	15.5	17.2	11.2	10.8	4.5	7.3	7.0	4.2	2.9	2.2	17.5	18.4	7.2	6.1
11.7	9.7	21.7	23.3	9.5	11.2	6.1	6.2	8.0	8.2	1.8	2.0	7.7	7.8	10.8	10.0
7.6	3.6	21.8	23.3	12.2	11.4	3.6	9.8	11.7	8.3	4.1	1.6	8.1	7.8	9.1	8.3
12.7	12.5	22.2	23.2	12.7	3.6	11.1	3.6	9.5	12.5	-----	8.9	17.5	7.1	4.8	8.9
2.3	3.6	11.7	18.0	5.4	7.2	7.8	4.3	8.5	5.0	3.1	2.2	29.5	33.1	8.5	7.9
7.2	6.2	21.6	21.6	8.2	9.5	6.7	5.2	8.2	6.0	2.4	1.9	13.0	14.5	9.3	9.1
8.6	10.3	19.7	20.1	9.8	12.7	5.3	4.1	4.9	6.2	3.3	4.5	15.2	17.6	7.4	7.0
9.2	5.8	11.1	14.9	5.3	5.5	6.3	5.2	7.9	6.1	3.7	3.6	26.7	28.1	5.5	4.4
10.8	11.6	16.8	17.6	8.9	12.0	8.4	4.6	9.1	7.4	3.5	1.9	9.7	8.8	9.7	11.6
7.3	6.9	18.5	16.1	7.3	8.9	6.1	4.8	4.2	4.8	4.8	4.1	23.3	21.3	5.8	6.9
6.3	9.4	17.1	12.3	2.7	8.7	3.6	8.0	6.3	7.3	5.4	3.6	20.7	13.0	3.6	8.7
11.3	11.5	21.5	23.4	8.3	9.7	6.1	5.7	8.7	6.8	3.5	3.8	10.1	10.1	9.4	10.5
11.8	10.1	19.9	20.9	9.0	9.6	6.6	7.3	7.1	6.7	1.3	1.1	3.6	3.7	13.2	13.3
11.2	8.6	17.0	18.7	3.3	8.2	7.3	6.9	5.9	5.4	2.1	1.9	6.0	6.1	11.6	9.6
13.6	13.8	11.8	11.9	6.4	11.9	7.3	4.9	4.5	3.0	1.8	1.0	5.5	5.9	5.5	7.9
12.7	5.9	4.8	13.2	4.7	7.4	6.3	4.4	3.2	-----	3.2	4.4	7.9	5.9	12.7	7.3
4.9	4.7	19.5	22.3	7.3	4.7	8.5	11.8	8.5	2.4	-----	-----	6.1	-----	15.9	14.1
13.2	8.3	17.9	21.7	9.7	7.1	5.4	5.8	8.2	6.7	2.1	3.7	6.1	8.3	10.4	9.6
9.5	7.1	18.9	8.3	2.1	7.1	10.5	7.1	12.6	4.8	2.1	2.4	3.2	6.0	13.7	13.1
10.8	9.0	18.1	20.6	9.7	9.0	7.5	7.4	3.8	6.7	2.3	1.1	6.3	6.1	12.4	8.7
11.9	10.3	20.3	21.1	9.1	9.8	6.5	7.3	7.2	6.9	1.3	1.0	3.3	3.4	13.4	13.6

It appears from Table 26 that among all decedents 15 years and over the per cent of deaths from typhoid fever was 1.2 in both 1913 and 1912, the per cents being 1.3 and 1.4 among men but only 1.0 and 0.9 among women of the age stated. In 1913 and 1912, respectively, the per cents of deaths from typhoid fever were notably high for the following occupations of men: Engineers and surveyors, 3.6 and 2.8; sailors, pilots and oystermen, 3.3 and 1.6; barbers and hairdressers, 2.5 and 4.0; lumbermen and raftsmen, 2.3 and 2.2; laborers (not agricultural), 2.0 each year; draymen, hackmen and teamsters, 2.0 and 1.5; stock raisers, herders and drovers, 2.0 and 1.4; hotel and boarding-house keepers, 1.8 and 2.0; iron and steel workers, 1.4 and 2.4; steam railroad employees, 1.6 and 1.4; farmers, planters and farm laborers, 1.5 and 1.9; and merchants and dealers, 1.4 each year. Among women the per cents of deaths from typhoid fever were 2.5 and 5.9 for nurses and midwives, 4.8 and 1.5 for bookkeepers, clerks and copyists, and 1.8 and 2.0 for teachers in schools.

The "great white plague," tuberculosis, caused 15.4 per cent of all deaths at 15 years and over in both 1913 and 1912, the per cents being 16.6 and 16.1 for men and 13.4 and 14.1 for women of potential working age. The per cents were 17.2 and 16.8 among men reporting occupations as compared with only 12.5 and 12.4 for men without gainful occupation, and were likewise 17.2 and 23.4 among women wage earners against only 13.0 and 13.2 for housewives and other non-workers.

The per cents of deaths from tuberculosis equalled or exceeded the averages of 17.2 and 16.8 among men at work for several specific occupations in both 1913 and 1912 as follows: Plumbers and gas and steam fitters, 30.5 and 31.9; bookkeepers, clerks and copyists, 29.5 and 31.4; servants (waiters, cooks), 27.3 and 24.6; tailors, 25.8 and 26.9; musicians and teachers of music, 20.3 and 40.7; barbers and hairdressers, 22.9 and 24.0; hucksters and peddlers, 24.0 and 19.2; laborers (not agricultural), 22.3 and 20.7; butchers, 22.3 and 16.8; iron and steel workers, 22.2 and 17.9; engineers and surveyors, 21.0 and 18.4; bakers, 20.7 and 18.0; draymen, hackmen and teamsters, 19.6 and 20.1; saloon keepers and restaurant keepers, 19.1 and 16.9; painters, glaziers and varnishers, 18.7 and 23.1; composers, printers and pressmen, 18.3 and 28.6; machinists, 18.4 and 19.4; and steam railroad employees, 17.9 and 17.6. For women workers the per cents of deaths from tuberculosis were 27.0 and 39.7 among bookkeepers, clerks and copyists, 23.6 and 21.8 among teachers in schools, and 17.6 and 22.1 among servants.

On the other hand, the per cents of deaths from tuberculosis were very low indeed in both 1913 and 1912 for men engaged in the following occupations: Policemen, watchmen and detectives, 8.1 and 6.4; bankers, brokers and officials of companies, 8.7 and 8.3; merchants and dealers, 8.8 and 10.1; lawyers, 7.6 and 14.3; physicians and surgeons, 12.3 and 7.5; boot and shoe makers, 10.5 and 9.4; livery stable keepers and hostlers, 7.9 and 10.7; lumbermen and raftsmen, 10.1 and 11.5; farmers, planters and farm laborers, 11.1 and 9.8; soldiers, sailors and marines (U. S.), 12.1 and 11.7; and stock raisers, herders and drovers, 12.0 each year.

The per cents of deaths produced by cancers were 8.0 and 7.6 in 1913 and 1912 for all decedents aged 15 years and over, being only 6.2 and 5.7 among men but no less than 11.3 and 10.8 among women. For men, the per cents of deaths from cancer were notably high among masons

(brick and stone), 9.4 and 9.0; stock raisers, herders and drovers, 7.1 and 10.6; merchants and dealers, 8.6 and 8.4; boot and shoe makers, 9.5 and 6.2; policemen, watchmen and detectives, 8.1 and 7.4; farmers, planters and farm laborers, 8.0 and 7.8; machinists, 7.7 and 7.1; blacksmiths, 7.7 and 6.8; gardeners, florists, nurserymen and vine growers, 7.6 and 8.8; carpenters, 7.5 and 7.0; lawyers, 6.9 and 7.5; clergymen, 6.8 and 7.3; collectors, auctioneers and agents, 6.7 and 8.0; and compositors, printers and pressmen, 6.4 and 6.1. For women, the per cents of deaths from cancer were 19.0 and 10.7 among dressmakers and seamstresses, 18.3 and 14.1 among nurses and midwives, and 16.4 and 12.9 among teachers in schools.

The per cents of diseases of the circulatory system (heart disease, etc.) were 19.6 and 20.7 in 1913 and 1912 among all decedents 15 years and over, being 19.4 and 20.6 among men and 19.9 and 20.9 among women. The per cents were particularly great for the following specific occupations of men: Physicians and surgeons, 29.7 and 25.9; merchants and dealers, 25.9 and 29.1; boot and shoe makers, 25.7 and 27.1; lawyers, 23.6 and 27.1; bankers and brokers, 24.3 and 25.4; cabinetmakers and upholsterers, 23.8 and 22.0; carpenters, 23.2 and 24.2; apothecaries, pharmacists, etc., 22.7 and 28.3; clergymen, 23.0 and 20.2; blacksmiths, 22.7 and 23.7; masons (brick and stone), 23.5 and 20.2; livery stable keepers and hostlers, 22.2 and 23.2; gardeners and nurserymen, 21.8 and 23.3; farmers and planters, 21.7 and 23.3; miners and quarrymen, 21.6 each year; and sailors and pilots, 19.7 and 20.1. Among women wage earners the per cents of deaths from heart disease were 19.5 and 22.3 for nurses and midwives and 17.9 and 21.7 for servants.

The per cents for Bright's disease and nephritis, which often occur with heart disease, were 7.4 and 7.1 in 1913 and 1912 for all decedents 15 years and over, being 7.5 and 7.3 among men and 7.1 and 6.7 among women. The per cents were notably high for men engaged in the following occupations: Physicians and surgeons, 12.9 and 12.2; lawyers, 11.8 and 15.0; boot and shoe makers, 10.5 and 14.6; masons (brick and stone), 10.6 and 11.2; bankers and brokers, 10.9 and 10.4; clergymen, 9.5 and 12.8; collectors and agents, 10.0 and 9.4; gardeners and nurserymen, 11.7 and 8.3; livery stable keepers and hostlers, 9.5 and 12.5; merchants and dealers, 9.0 and 7.9; policemen and detectives, 8.9 and 9.6; butchers, 8.5 and 8.0; farmers and planters, 8.0 and 8.2; cabinet makers and upholsterers, 7.9 and 8.5; saloon keepers and restaurant keepers, 7.7 and 8.5; carpenters, 7.7 and 8.2; and engineers and firemen (not locomotive), 7.2 and 7.9. For women workers, the per cents of deaths from Bright's disease and nephritis were 12.6 and 4.8 among dressmakers and seamstresses and 8.2 and 6.7 among servants.

For diseases of the nervous system the per cents in 1913 and 1912 were 10.5 and 9.4 for all decedents, 9.7 and 9.0 for males, and 11.8 and 10.1 for females. The per cents were particularly great among men in the following occupations: Lawyers, 17.4 and 14.3; physicians and surgeons, 9.7 and 18.4; livery stable keepers and hostlers, 12.7 and 12.5; policemen and detectives, 16.1 and 9.6; merchants and dealers, 13.3 and 9.0; blacksmiths, 12.9 and 10.7; farmers and planters, 11.7 and 9.7; tailors, 11.7 and 8.9; painters, glaziers and varnishers, 11.4 and 9.8; boot and shoe makers, 11.4 and 9.4; bankers and brokers, 10.9 each year; stock raisers, herders and drovers, 10.8 and 11.6; collectors and agents, 10.9

and 10.3; carpenters, 10.0 and 10.4; and saloon keepers and restaurant keepers, 9.7 and 9.9. The per cents were 13.6 and 13.8 for school teachers among women workers.

For diseases of the respiratory system, the per cents in 1913 and 1912 were 8.7 and 9.2 for all decedents, 8.5 and 9.0 for men, and 9.0 and 9.6 for women. The per cents were notably high for the following occupations of men: Gardeners and nurserymen, 12.2 and 11.4; draymen, hackmen and teamsters, 11.2 and 10.8; clergymen, 10.8 and 12.9; policemen and detectives, 10.5 and 13.8; sailors and pilots, 9.8 and 12.7; farmers and planters, 9.5 and 11.2; stockraisers, herders and drovers, 8.9 and 12.0; and butchers, 9.2 and 9.7.

For diseases of the digestive system, the per cents in 1913 and 1912 were 6.3 and 6.7 among all decedents, 6.1 and 6.3 among males, and 6.6 and 7.3 among females. The per cents were notably high for men in the following occupations: Saloon keepers and restaurant keepers, 8.7 and 11.4; compositors, printers and pressmen, 8.3 and 10.2; soldiers, sailors and marines (U. S.), 7.9 and 10.1; butchers, 6.9 and 15.0; hotel and boarding-house keepers, 7.3 and 12.0; cabinetmakers and upholsterers, 9.5 and 6.8; engineers and firemen (not locomotive), 8.7 and 7.0; merchants and dealers, 6.9 and 7.7; clergymen, 6.7 and 8.3; and physicians and surgeons, 6.5 and 7.5. The per cents were 8.5 and 11.8 for nurses and midwives and 10.5 and 7.1 for dressmakers and seamstresses among women wage earners.

Suicides formed 2.6 per cent of all deaths at 15 years and over in both 1913 and 1912, the per cents being 3.4 and 3.6 among men and 1.3 and 1.1 among women of potential working age. The per cents of suicides were 3.4 and 3.5 for men reporting occupations as compared with 3.5 and 3.8 for those not working or on the retired list. Among women, however, the per cents of suicides were greater for wage earners, 2.1 and 1.9, than for housewives and others without gainful occupation, 1.3 and 1.0.

The occupations of men surpassing the average per cents of 3.4 and 3.5 for suicides were as follows: Barbers and hair dressers, 6.6 and 6.0; bakers, 6.5 and 4.5; cabinetmakers and upholsterers, 6.4 and 5.1; plumbers and gas and steam fitters, 6.1 and 4.3; tailors, 5.5 and 8.2; machinists, 5.6 and 5.3; saloonkeepers and restaurant keepers, 5.4 and 4.8; servants (waiters, cooks), 5.0 and 6.5; boot and shoe makers, 4.8 and 4.1; collectors and agents, 4.6 and 5.0; bookkeepers, clerks and copyists, 4.6 and 4.2; musicians and teachers of music, 4.7 and 3.7; architects, artists and teachers of art, 3.9 and 6.8; engineers and surveyors, 3.6 and 4.0; merchants and dealers, 4.1 and 3.7; policemen and detectives, 4.0 and 4.3; laborers (not agricultural), 4.0 and 3.8; hotel and boarding-house keepers, 3.7 and 8.0; and steam railroad employees, 3.7 and 3.6. Among women reporting gainful occupations, the per cents of suicides were quite high for bookkeepers, clerks and copyists, 3.2 and 4.4; servants, 2.1 and 3.7; and dressmakers and seamstresses, 2.1 and 2.4.

For deaths from violence other than suicide, the per cents in 1913 and 1912 were 8.6 and 8.5 for all decedents 15 years and over, being as great as 11.5 and 11.3 among men but only 3.6 and 3.7 among women of this age. For each sex, especially females, the proportion dying from accidental injuries was greater among those reporting occupations than among those without gainful occupation. The per cents were

11.7 in 1913 and 11.5 in 1912 for men workers against 10.1 each year for men not employed, and were 6.0 and 6.1 for women wage earners as compared with 3.3 and 3.4 for housewives and other non-workers.

The occupations of men with more than the average per cents of 11.7 and 11.5 for deaths from miscellaneous violence were as follows: Lumbermen and raftsmen, 29.5 and 33.1; steam railroad employees, 26.7 and 28.1; hucksters and peddlers, 20.0 and 19.2; engineers and surveyors, 18.8 and 17.2; draymen, hackmen and teamsters, 17.5 and 18.4; laborers (not agricultural), 16.5 and 18.0; machinists, 16.3 and 17.1; engineers and firemen (not locomotive), 15.9 and 16.9; iron and steel workers, 17.9 and 14.3; sailors and pilots, 15.2 and 17.6; plumbers and gas and steam fitters, 14.6 and 13.8; and miners and quarrymen, 13.0 and 14.5.

On the other hand, the occupations of men with remarkably small per cents of deaths from accidents were the following: Lawyers, 2.8 and 3.0; physicians and surgeons, 4.5 and 2.7; clergymen, 4.0 and 4.6; merchants and dealers, 4.6 and 5.6; apothecaries, pharmacists, etc., 4.6 and 7.5; tailors, 3.9 and 5.2; hotel and boarding-house keepers, 3.7 and 6.0; boot and shoe makers, 5.7 and 1.0; masons (brick and stone), 5.9 and 4.5; bookkeepers, clerks and copyists, 6.0 and 5.1; cabinetmakers and upholsterers, 6.3 and 5.1; compositors, printers and pressmen, 7.3 and 3.1; and musicians and teachers of music, 6.2 in both 1913 and 1912.

TABLE 27.—Deaths from Each Specified Disease and Class of Diseases.

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
ALL CAUSES		38,509	23,807	14,792	36,501	596	183	707
I. GENERAL DISEASES		11,183	6,686	4,497	10,460	220	69	272
No.								
1.	Typhoid fever	436	294	142	399	5	1	6
2.	Typhus fever							
3.	Relapsing fever							
4.	Malaria	77	46	31	68	1	1	3
5.	Smallpox	15	8	7	15			
6.	Measles	154	75	79	146	1	2	
7.	Scarlet fever	85	42	43	75			10
8.	Whooping cough	128	52	76	120	3	1	
9.	(a) Diphtheria	167	92	75	161		1	2
	(b) Croup	19	14	5	18			
10.	Influenza	220	108	112	216	1		3
11.	Miliary fever							
12.	Asiatic cholera							
13.	Cholera nostras	4	4		4			
14.	Dysentery	68	39	29	66	1		1
15.	Plague	2	1	1	1			
16.	Yellow fever							
17.	Leprosy							
18.	Erysipelas	99	54	45	94	1	3	
19.	Other epidemic diseases	9	5	4	9			
20.	Purulent infection and septicæmia	72	46	26	66	2	2	2
21.	Glanders	1	1		1			
22.	Anthrax	2	2		1			1
23.	Rabies	7	4	3	5	1		
24.	Tetanus	30	20	10	29			
25.	Mycoses	1	1		1			
26.	Pellagra	19	6	13	19			
27.	Beriberi	4	2	2				1
<i>Tuberculosis.</i>								
28.	Tuberculosis of the lungs	4,536	3,063	1,473	4,113	130	44	180
29.	Acute miliary tuberculosis	108	63	45	99	4		2
30.	Tuberculous meningitis	323	179	144	291	8	1	4
31.	Abdominal tuberculosis	234	124	110	212	9	6	1
32.	Pott's disease	49	29	20	46	2		1
33.	White swellings	21	14	7	20	1		
34.	Tuberculosis of other organs	70	52	18	67	2		
35.	Disseminated tuberculosis	61	37	24	61			
36.	Rickets	20	6	14	18			
37.	Syphilis	212	157	55	196	6	1	4
38.	Gonococcus infection	9	4	5	8	1		

Classified by Sex, Race, Nativity and Age Periods, for California: 1913.

Japanese	White				Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
	Born in California	Born in other states	Foreign born	Unknown									
613	9,675	14,297	11,404	1,125	4,336	1,631	1,048	2,273	3,762	4,215	4,670	5,087	11,627
162	2,743	4,283	3,230	204	419	602	452	1,068	1,728	1,732	1,688	1,559	1,905
25	128	149	115	7	2	13	44	108	111	71	42	24	21
4	30	21	16	1	10	9	7	4	12	5	4	9	17
	5	9		1		1	2	3	5		2	2	
5	117	20	9		44	82	17	6	1	1		1	2
	45	22	7	1	3	44	32	3	1	1	1		
4	104	11	5		66	55	6						1
3	110	37	11	3	5	80	69	2	5	2	2	1	1
1	17	1			3	14	2						
	34	124	56	2	7	8	4	7	5	10	13	30	136
	2	2								1		1	2
	16	27	23		4	6	1	1	3	6	9	6	32
1		1						1				1	
1	26	41	26	1	17		1	4	8	10	12	15	32
	6	3			2	2	3				2		
	30	24	10	2	3	5	7	9	9	8	12	7	12
	1									1			
			1						1			1	
1	3	1	1			1	3	1	1	1			
1	17	6	5	1	8	2	8	3	2	1	4	2	
			1						1				
	1	11	6	1			1		2	5	4	4	3
3					2			1				1	
69	1,004	1,708	1,304	97	36	48	78	722	1,189	990	688	466	319
3	40	33	25	1	5	13	12	25	23	15	11	4	
19	185	67	37	2	68	119	49	30	27	19	8	2	3
6	90	70	46	6	22	29	18	33	40	40	27	10	15
	18	14	18	1		5	7	9	9	4	6	6	3
	6	8	6			1	3	5	3	2	2	3	2
1	26	27	13	1	2	8	3	7	18	12	6	5	9
	25	21	15		7	4	8	2	13	11	6	7	3
	17		1		11	6	1		1			1	
2	106		40	4	77	11	3	6	20	32	32	19	12
5													
	2	4	2		2				3	2	1		1

TABLE 27.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
No.	Cancer.							
39.	Cancer* of the buccal cavity.....	102	82	20	100	1	-----	1
40.	Cancer* of the stomach, liver.....	1,007	599	408	979	5	-----	21
41.	Cancer* of the peritonæum, intestines and rectum.....	351	186	165	344	6	1	-----
42.	Cancer* of the female genital organs.....	372	-----	372	359	8	1	3
43.	Cancer* of the breast.....	198	-----	198	196	1	-----	1
44.	Cancer* of the skin.....	77	52	25	75	1	-----	1
45.	Cancer* of other or unspecified organs.....	458	322	136	444	5	-----	9
45.	Other tumors (except of female genital organs).....	9	2	7	9	-----	-----	-----
47.	Acute articular rheumatism.....	76	42	34	73	1	1	1
48.	Chronic rheumatism and gout.....	109	40	69	105	1	-----	3
49.	Scurvy.....	3	1	2	3	-----	-----	-----
50.	Diabetes.....	440	216	224	433	3	-----	4
51.	Exophthalmic goitre.....	44	7	37	42	-----	-----	2
52.	Addison's disease.....	16	12	4	15	1	-----	-----
53.	Leuchæmia.....	38	27	11	37	-----	-----	-----
54.	Anæmia, chlorosis.....	197	98	99	190	3	1	1
55.	Other general diseases.....	33	18	15	33	-----	-----	-----
56.	Alcoholism (acute or chronic).....	345	301	44	335	4	2	2
57.	Chronic lead poisoning.....	16	16	-----	16	-----	-----	-----
58.	Other chronic occupation poisonings.....	2	2	-----	2	-----	-----	-----
59.	Other chronic poisonings.....	28	19	9	25	1	-----	2
II. DISEASES OF THE NERVOUS SYSTEM.....		3,720	2,180	1,500	3,567	55	10	55
60.	Encephalitis.....	62	44	18	58	1	1	-----
61.	(a) Simple meningitis.....	189	104	85	171	3	1	-----
	(b) Cerebrospinal meningitis (undefined).....	167	102	65	159	4	-----	1
	(c) Cerebrospinal fever.....	49	27	22	47	1	-----	-----
62.	Locomotor ataxia.....	94	78	16	87	2	-----	5
63.	(a) Acute anterior poliomyelitis.....	33	17	16	32	-----	1	-----
	(b) Other diseases of the spinal cord.....	180	102	78	178	1	-----	-----
64.	Cerebral hæmorrhage, apoplexy.....	1,955	1,112	853	1,894	28	3	38
65.	Softening of the brain.....	68	44	24	68	-----	-----	-----
66.	Paralysis without specified cause.....	291	154	140	285	5	1	3
67.	General paralysis of the insane.....	168	134	34	159	4	-----	3
68.	Other forms of mental alienation.....	86	37	49	81	2	-----	3
69.	Epilepsy.....	120	68	52	116	-----	1	1
70.	Convulsions (nonpuerperal).....	3	2	1	3	-----	-----	-----
71.	Convulsions of infants.....	38	24	14	34	1	-----	-----
72.	Chorea.....	6	2	4	5	1	-----	-----
73.	Neuralgia and neuritis.....	23	10	13	21	-----	1	-----
74.	Other diseases of the nervous system.....	122	69	53	117	1	1	1
75.	Diseases of the eyes and their adnexa.....	2	1	1	2	-----	-----	-----
76.	Diseases of the ears.....	51	29	22	50	1	-----	-----
III. DISEASES OF THE CIRCULATORY SYSTEM.....		6,281	3,920	2,361	6,071	86	9	98
77.	Pericarditis.....	46	30	16	44	-----	-----	2
78.	Acute endocarditis.....	416	281	135	408	6	-----	6
79.	Organic diseases of the heart.....	4,324	2,623	1,701	4,177	60	3	70
80.	Angina pectoris.....	172	127	45	164	1	3	2
81.	Diseases of arteries, atheroma, aneurism, etc.....	1,132	763	369	1,097	14	3	18
82.	Embolism and thrombosis.....	141	70	71	137	4	-----	-----
83.	Diseases of veins (varices, hæmorrhoids, phlebitis, etc.).....	23	11	12	23	-----	-----	-----
84.	Diseases of lymphatic system (lymphangitis, etc.).....	15	8	7	14	1	-----	-----
85.	Hæmorrhage; other diseases of circulatory system.....	12	7	5	12	-----	-----	-----

*Cancer and other malignant tumors.

by Sex, Race, Nativity and Age Periods, for California: 1913—Continued.

Japanese	White				Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
	Born in California	Born in other states	Foreign born	Unknown									
2	9	44	45	2					2	10	10	28	52
	86	432	445	16	1	1	2	3	25	86	200	282	407
	32	171	134	7		1	3	5	11	32	68	91	140
1	52	196	111					2	19	69	107	88	87
	34	112	50					1	7	37	57	47	49
	7	41	27			1		1	1	6	10	17	41
	57	208	175	4	1	4	7	20	17	30	89	108	182
	2	5	2					1		2	1	2	3
	27	28	18		1	5	17	10	11	11	7	3	11
	8	49	46	2			2	5	7	10	8	23	54
	2		1			2						1	
	62	198	170	3		6	20	25	27	30	69	110	153
	10	24	8					1	7	9	17	8	2
	2	10	3					1	2	5	5	1	2
1	15	13	9			6	1	7	6	3	6	6	3
2	33	88	65	4	3	5	8	14	15	22	43	42	45
	16	9	7	1	9	4	3	1	1	2	2	5	6
2	71	125	108	31		1		6	49	112	83	59	85
	4	7	5					2	1	3	5	2	3
			2							1			1
	4	14	5	2				1	7	2	7	8	3
33	619	1,751	1,138	59	146	148	117	121	133	287	498	625	1,645
2	21	22	15		6	6	7	2	9	11	7	8	6
14	91	50	28	2	52	47	17	15	10	17	10	14	7
3	99	47	12	1	25	46	38	24	7	11	7	6	3
1	19	18	7	3	5	6	9	9	6	7	5	1	1
	6	52	29						1	12	23	29	29
	25	5	2		5	14	9	3	1			1	
1	22	102	52	2	1	3	2	5	9	15	25	36	84
2	131	1,014	715	34	8	2	2	10	24	89	247	392	1,191
	6	34	28						1	2	6	10	49
	22	168	92	3	3		1		2	12	27	53	106
2	19	73	61	6					16	48	66	15	23
	12	40	28	1	1		1	3	10	15	27	16	13
2	53	35	24	4	1		10	36	17	17	14	11	14
	1	2					3						
3	33	1			30	8							
	1	4				1	1	1		1	1		1
1	4	10	7			2	1	1	2	1	1	5	10
2	26	59	29	3	3	5	5	7	12	24	27	22	17
	2					1	1						
	26	15	9		6	7	10	5	6	5	5	6	1
17	486	2,911	2,480	194	12	7	54	96	263	442	760	1,157	3,490
	8	17	19			1	4	2	5	9	6	9	10
1	57	194	137	15	2	3	12	18	40	58	69	73	141
14	354	1,969	1,715	149	2	2	33	73	185	321	564	838	2,306
2	7	91	62	4					3	10	22	39	98
	32	557	488	20				1	12	24	69	166	800
	17	69	47	4	2		3	1	11	16	23	26	59
	2	11	8	2		1	1		2	2	6	4	7
	6	6	2		5		1	1	3	1			4
	3	7	2		1				2	1	1	2	5

TABLE 27.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death	Total deaths	Male	Female	White	Negro	Indian	Chinese
IV. DISEASES OF THE RESPIRATORY SYSTEM							
No.	3,806	2,266	1,540	3,579	54	22	73
86. Diseases of the nasal fossæ.....	2	1	1	2			
87. Diseases of the larynx.....	13	9	4	11			1
88. Diseases of the thyroid body.....	16	1	15	16			
89. Acute bronchitis.....	194	94	100	181	2	1	7
90. Chronic bronchitis.....	243	126	117	234		3	5
91. Broncho-pneumonia.....	963	511	442	901	14	3	10
92. (a) Lobar pneumonia.....	1,175	757	418	1,102	26	3	25
(b) Pneumonia (undefined).....	810	501	309	751	8	11	17
93. Pleurisy.....	105	68	37	97			3
94. Pulmonary congestion, pul. apoplexy..	153	103	50	145	3	1	4
95. Gangrene of the lung.....	9	7	2	9			
96. Asthma.....	107	67	40	105	1		1
97. Pulmonary emphysema.....	2	2		2			
98. Other diseases of the respiratory system (tuberculosis excepted).....	24	19	5	23			
V. DISEASES OF THE DIGESTIVE SYSTEM							
No.	3,634	2,126	1,508	3,394	38	25	57
99. Diseases of the mouth and adnexa.....	19	12	7	17	1		
100. Diseases of the pharynx.....	29	15	14	28	1		
101. Diseases of the œsophagus.....	6	5	1	5	1		
102. Ulcer of the stomach.....	154	101	53	148	1		3
103. Other diseases of stomach (cancer excepted).....	202	147	115	249	2	3	3
104. Diarrhœa and enteritis (under 2 years).....	1,270	708	562	1,162	11	13	8
105. Diarrhœa and enteritis (2 years and over).....	369	195	174	343	4	6	9
106. Ankylostomiasis.....							
107. Intestinal parasites.....	6	5	1	5			
108. Appendicitis and typhlitis.....	366	237	129	349	4		4
109. (a) Hernias.....	105	67	38	102	1		2
(b) Intestinal obstructions.....	282	157	125	252	6	1	13
110. Other diseases of the intestines.....	55	29	26	52			
111. Acute yellow atrophy of the liver.....	13	8	5	12			
112. Hydatid tumor of the liver.....							
113. Cirrhosis of the liver.....	418	296	122	405	4	1	8
114. Biliary calculi.....	58	20	38	58			
115. Other diseases of the liver.....	159	89	70	151	1	1	4
116. Diseases of the spleen.....	3	2	1	3			
117. Simple peritonitis (nonpuerperal).....	39	20	19	35			1
118. Other diseases of digestive system (except cancer and tuberculosis).....	21	13	8	18	1		2

by Sex, Race, Nativity and Age Periods, for California: 1913—Continued.

Japanese	White				Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
	Born in California	Born in other states	Foreign born	Unknown									
78	1,161	1,172	1,160	86	664	306	97	116	200	324	355	422	1,323
1	6	1	2		2	3	1	1		1	1	2	1
1	1	12	3				1	2	1	3	5	3	1
3	86	52	42	1	65	24	5	3	2	4	3	12	76
1	23	101	105	5	9	3	3	1	2	4	9	23	189
25	419	211	250	21	294	132	33	13	25	46	67	70	273
19	301	372	402	27	113	67	20	55	105	163	159	172	318
23	286	256	208	21	167	65	24	28	41	60	67	86	272
5	25	42	26	4	1	4	4	10	15	21	13	11	26
	19	65	60	1	12	5	3	1	2	2	6	14	108
	2	3	4					1	1	3	2	1	1
	10	42	50	3		2		1	2	11	18	25	48
		1	1							1			1
1	2	11	7	3	1		1		4	2	5	3	8
120	1,657	964	719	54	1,104	354	103	127	211	278	348	329	690
1	7	6	4		6	2	1	1	1	1		3	4
	14	8	4	2	1	9	5	4	3	3	2	1	1
	2	1	2			1			2			2	1
2	23	78	45	2		1		2	22	27	33	28	41
5	61	109	77	2	32	18	6	5	13	12	24	33	119
76	1,112	30	17	3	1,076	194							
7	104	140	93	6		95	26	10	12	29	24	35	138
1			5					2	3		1		
9	125	137	84	3	2	12	43	71	72	55	55	34	22
	20	42	38	2	8	2		2	6	10	16	15	46
10	80	108	61	3	50	16	11	8	21	34	44	25	73
3	18	19	14	1	5	2	4	3	5	10	4	10	12
1	6	4	1	1	3		1	3	2			1	3
	52	147	183	23	1		1	3	21	62	95	86	149
	6	32	17	3				1	3	10	6	17	21
2	19	71	59	2	6	1	2	7	14	13	31	32	53
		1	2					1			2		
3	7	17	10	1	3		3	3	10	6	6	5	3
	1	14	8		1	1		1	1	6	5	2	4

TABLE 27.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
VI DISEASES OF THE GENITO-URINARY SYSTEM								
No		2,900	1,872	1,088	2,831	52	5	52
119	Acute nephritis	183	118	65	166	4		
120	Bright's disease	2,209	1,420	789	2,122	32	4	41
121	Chyluria							
122	Other diseases of kidneys and adnexa	55	38	17	54			1
123	Calculi of the urinary passages	16	13	3	16			
124	Disease of the bladder	149	141	8	146		1	1
125	Disease of the urethra, urinary abscess, etc.	13	12	1	12	1		
126	Disease of the prostate	125	125		121	2		2
127	Nonvenereal diseases of male genital organs	78		78	73	5		
128	Uterine hemorrhage (nonpuerperal)	1		1	1			
129	Uterine tumor (noncancerous)	71		71	65	6		
130	Other diseases of the uterus	19		19	19			
131	Cysts and other tumors of the ovary	36		36	33	1		1
132	Salpingitis and other diseases of female genital organs	72		72	73	5		
133	Nonpuerperal diseases of the breast (wound excepted)							
VII FOR PUERPERAL STATE								
134	Accidents of pregnancy	22		22	26	4	2	3
135	Puerperal hemorrhage	27		27	37	1		1
136	Other accidents of labor	22		22	26			
137	Puerperal sepsis	101		101	90	2	1	
138	Puerperal abscess and complications	108		108	104	1		1
139	Puerperal phlegmon and abscess, embolism, etc.	11		11	11			
140	Puerperal clots in blood vessels, etc.	12		12	18		1	1
141	Puerperal diseases of the breast							
VIII DISEASES OF THE SKIN								
142	Chancres	2	2	2	2	3		2
143	Chancroid	2	2	2	2	2		2
144	Acute gonorrhea	2	2	2	2			
145	Chronic gonorrhea	2	2	2	2			
146	Acute gonorrhea of the eye	2	2	2	2			
147	Chronic gonorrhea of the eye	2	2	2	2			
148	Acute gonorrhea of the ear	2	2	2	2			
149	Chronic gonorrhea of the ear	2	2	2	2			
150	Acute gonorrhea of the nose	2	2	2	2			
151	Chronic gonorrhea of the nose	2	2	2	2			
152	Acute gonorrhea of the throat	2	2	2	2			
153	Chronic gonorrhea of the throat	2	2	2	2			
154	Acute gonorrhea of the rectum	2	2	2	2			
155	Chronic gonorrhea of the rectum	2	2	2	2			
156	Acute gonorrhea of the sigmoid flexure	2	2	2	2			
157	Chronic gonorrhea of the sigmoid flexure	2	2	2	2			
158	Acute gonorrhea of the cecum	2	2	2	2			
159	Chronic gonorrhea of the cecum	2	2	2	2			
160	Acute gonorrhea of the appendix	2	2	2	2			
161	Chronic gonorrhea of the appendix	2	2	2	2			
162	Acute gonorrhea of the colon	2	2	2	2			
163	Chronic gonorrhea of the colon	2	2	2	2			
164	Acute gonorrhea of the small intestine	2	2	2	2			
165	Chronic gonorrhea of the small intestine	2	2	2	2			
166	Acute gonorrhea of the stomach	2	2	2	2			
167	Chronic gonorrhea of the stomach	2	2	2	2			
168	Acute gonorrhea of the duodenum	2	2	2	2			
169	Chronic gonorrhea of the duodenum	2	2	2	2			
170	Acute gonorrhea of the pancreas	2	2	2	2			
171	Chronic gonorrhea of the pancreas	2	2	2	2			
172	Acute gonorrhea of the liver	2	2	2	2			
173	Chronic gonorrhea of the liver	2	2	2	2			
174	Acute gonorrhea of the gallbladder	2	2	2	2			
175	Chronic gonorrhea of the gallbladder	2	2	2	2			
176	Acute gonorrhea of the biliary ducts	2	2	2	2			
177	Chronic gonorrhea of the biliary ducts	2	2	2	2			
178	Acute gonorrhea of the spleen	2	2	2	2			
179	Chronic gonorrhea of the spleen	2	2	2	2			
180	Acute gonorrhea of the lungs	2	2	2	2			
181	Chronic gonorrhea of the lungs	2	2	2	2			
182	Acute gonorrhea of the heart	2	2	2	2			
183	Chronic gonorrhea of the heart	2	2	2	2			
184	Acute gonorrhea of the pericardium	2	2	2	2			
185	Chronic gonorrhea of the pericardium	2	2	2	2			
186	Acute gonorrhea of the pleura	2	2	2	2			
187	Chronic gonorrhea of the pleura	2	2	2	2			
188	Acute gonorrhea of the peritoneum	2	2	2	2			
189	Chronic gonorrhea of the peritoneum	2	2	2	2			
190	Acute gonorrhea of the diaphragm	2	2	2	2			
191	Chronic gonorrhea of the diaphragm	2	2	2	2			
192	Acute gonorrhea of the mediastinum	2	2	2	2			
193	Chronic gonorrhea of the mediastinum	2	2	2	2			
194	Acute gonorrhea of the thorax	2	2	2	2			
195	Chronic gonorrhea of the thorax	2	2	2	2			
196	Acute gonorrhea of the abdomen	2	2	2	2			
197	Chronic gonorrhea of the abdomen	2	2	2	2			
198	Acute gonorrhea of the pelvis	2	2	2	2			
199	Chronic gonorrhea of the pelvis	2	2	2	2			
200	Acute gonorrhea of the perineum	2	2	2	2			
201	Chronic gonorrhea of the perineum	2	2	2	2			
202	Acute gonorrhea of the anus	2	2	2	2			
203	Chronic gonorrhea of the anus	2	2	2	2			
204	Acute gonorrhea of the rectum	2	2	2	2			
205	Chronic gonorrhea of the rectum	2	2	2	2			
206	Acute gonorrhea of the sigmoid flexure	2	2	2	2			
207	Chronic gonorrhea of the sigmoid flexure	2	2	2	2			
208	Acute gonorrhea of the cecum	2	2	2	2			
209	Chronic gonorrhea of the cecum	2	2	2	2			
210	Acute gonorrhea of the appendix	2	2	2	2			
211	Chronic gonorrhea of the appendix	2	2	2	2			
212	Acute gonorrhea of the colon	2	2	2	2			
213	Chronic gonorrhea of the colon	2	2	2	2			
214	Acute gonorrhea of the small intestine	2	2	2	2			
215	Chronic gonorrhea of the small intestine	2	2	2	2			
216	Acute gonorrhea of the stomach	2	2	2	2			
217	Chronic gonorrhea of the stomach	2	2	2	2			
218	Acute gonorrhea of the duodenum	2	2	2	2			
219	Chronic gonorrhea of the duodenum	2	2	2	2			
220	Acute gonorrhea of the pancreas	2	2	2	2			
221	Chronic gonorrhea of the pancreas	2	2	2	2			
222	Acute gonorrhea of the liver	2	2	2	2			
223	Chronic gonorrhea of the liver	2	2	2	2			
224	Acute gonorrhea of the gallbladder	2	2	2	2			
225	Chronic gonorrhea of the gallbladder	2	2	2	2			
226	Acute gonorrhea of the biliary ducts	2	2	2	2			
227	Chronic gonorrhea of the biliary ducts	2	2	2	2			
228	Acute gonorrhea of the spleen	2	2	2	2			
229	Chronic gonorrhea of the spleen	2	2	2	2			
230	Acute gonorrhea of the lungs	2	2	2	2			
231	Chronic gonorrhea of the lungs	2	2	2	2			
232	Acute gonorrhea of the heart	2	2	2	2			
233	Chronic gonorrhea of the heart	2	2	2	2			
234	Acute gonorrhea of the pericardium	2	2	2	2			
235	Chronic gonorrhea of the pericardium	2	2	2	2			
236	Acute gonorrhea of the pleura	2	2	2	2			
237	Chronic gonorrhea of the pleura	2	2	2	2			
238	Acute gonorrhea of the peritoneum	2	2	2	2			
239	Chronic gonorrhea of the peritoneum	2	2	2	2			
240	Acute gonorrhea of the diaphragm	2	2	2	2			
241	Chronic gonorrhea of the diaphragm	2	2	2	2			
242	Acute gonorrhea of the mediastinum	2	2	2	2			
243	Chronic gonorrhea of the mediastinum	2	2	2	2			
244	Acute gonorrhea of the thorax	2	2	2	2			
245	Chronic gonorrhea of the thorax	2	2	2	2			
246	Acute gonorrhea of the abdomen	2	2	2	2			
247	Chronic gonorrhea of the abdomen	2	2	2	2			
248	Acute gonorrhea of the pelvis	2	2	2	2			
249	Chronic gonorrhea of the pelvis	2	2	2	2			
250	Acute gonorrhea of the perineum	2	2	2	2			
251	Chronic gonorrhea of the perineum	2	2	2	2			
252	Acute gonorrhea of the anus	2	2	2	2			
253	Chronic gonorrhea of the anus	2	2	2	2			
254	Acute gonorrhea of the rectum	2	2	2	2			
255	Chronic gonorrhea of the rectum	2	2	2	2			
256	Acute gonorrhea of the sigmoid flexure	2	2	2	2			
257	Chronic gonorrhea of the sigmoid flexure	2	2	2	2			
258	Acute gonorrhea of the cecum	2	2	2	2			
259	Chronic gonorrhea of the cecum	2	2	2	2			
260	Acute gonorrhea of the appendix	2	2	2	2			
261	Chronic gonorrhea of the appendix	2	2	2	2			
262	Acute gonorrhea of the colon	2	2	2	2			
263	Chronic gonorrhea of the colon	2	2	2	2			
264	Acute gonorrhea of the small intestine	2	2	2	2			
265	Chronic gonorrhea of the small intestine	2	2	2	2			
266	Acute gonorrhea of the stomach	2	2	2	2			
267	Chronic gonorrhea of the stomach	2	2	2	2			
268	Acute gonorrhea of the duodenum	2	2	2	2			
269	Chronic gonorrhea of the duodenum	2	2	2	2			
270	Acute gonorrhea of the pancreas	2	2	2	2			
271	Chronic gonorrhea of the pancreas	2	2	2	2			
272	Acute gonorrhea of the liver	2	2	2	2			
273	Chronic gonorrhea of the liver	2	2	2	2			
274	Acute gonorrhea of the gallbladder	2	2	2	2			
275	Chronic gonorrhea of the gallbladder	2	2	2	2			
276	Acute gonorrhea of the biliary ducts	2	2	2	2			
277	Chronic gonorrhea of the biliary ducts	2	2	2	2			
278	Acute gonorrhea of the spleen	2	2	2	2			
279	Chronic gonorrhea of the spleen	2	2	2	2			
280	Acute gonorrhea of the lungs	2	2	2	2			
281	Chronic gonorrhea of the lungs	2	2	2	2			
282	Acute gonorrhea of the heart	2	2	2	2			
283	Chronic gonorrhea of the heart	2	2	2	2			
284	Acute gonorrhea of the pericardium	2	2	2	2			
285	Chronic gonorrhea of the pericardium	2	2	2	2			
286	Acute gonorrhea of the pleura	2	2	2	2			
287	Chronic gonorrhea of the pleura	2	2	2	2			
288	Acute gonorrhea of the peritoneum	2	2	2	2			
289	Chronic gonorrhea of the peritoneum	2	2	2	2			
290	Acute gonorrhea of the diaphragm	2	2	2	2			
291	Chronic gonorrhea of the diaphragm	2	2	2	2			
292	Acute gonorrhea of the mediastinum	2	2	2	2			
293	Chronic gonorrhea of the mediastinum	2	2	2	2			
294	Acute gonorrhea of the thorax	2	2	2	2			
295	Chronic gonorrhea of the thorax	2	2	2	2			
296	Acute gonorrhea of the abdomen	2	2	2	2			

TABLE 27.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES								
No.		3,970	3,254	716	3,737	51	24	65
155.	Suicide by poison	188	81	57	136	1		
156.	Suicide by asphyxia	123	93	30	118	1		3
157.	Suicide by hanging or strangulation	81	71	10	73	1		3
158.	Suicide by drowning	32	24	8	29		1	
159.	Suicide by firearms	364	330	34	346	4		5
160.	Suicide by cutting or piercing instruments	65	58	7	61			3
161.	Suicide by jumping from a high place	10	4	6	10			
162.	Suicide by crushing	15	15		13			
163.	Other suicides	9	6	3	9			
164.	Poisoning by food	64	35	29	60		1	1
165.	Other acute poisonings	72	41	31	67		1	2
166.	Conflagration	68	54	14	61	1		5
167.	Burns (conflagration excepted)	163	88	75	152	4		1
168.	Absorption of deleterious gases (conflagration excepted)	125	104	21	116	2		4
169.	Accidental drowning	329	307	22	308	5	5	2
170.	Traumatism by firearms	84	76	8	81	1		
171.	Traumatism by cutting or piercing instruments	6	6		5			
172.	Traumatism by fall	369	264	105	358	4	2	3
173.	Traumatism in mines and quarries	70	70		69		1	
174.	Traumatism by machines	69	67	2	66	1	1	1
175.	(a) Railroad accidents and injuries	346	321	25	334	5	2	2
	(b) Street car accidents and injuries	143	122	21	134	2	1	1
	(c) Automobile accidents and injuries	306	237	69	294	1	2	3
	(d) Injuries by other vehicles	159	140	19	151		1	2
	(e) Landslide, other crushing	139	106	33	138			
176.	Injuries by animals	46	42	4	44	1		
177.	Starvation	6	3	3	6			
178.	Excessive cold	14	13	1	12		1	1
179.	Effects of heat	46	31	15	40			4
180.	Lightning	1	1				1	
181.	Electricity (lightning excepted)	66	66		65			
182.	Homicide by firearms	216	183	33	176	12	3	12
183.	Homicide by cutting or piercing instruments	46	40	6	37	2		2
184.	Homicide by other means	51	38	13	45	2		4
185.	Fractures (cause not specified)	12	8	4	12			
186.	Other injuries	117	109	8	111	1	1	1
XIV. ILL-DEFINED DISEASES								
187.	Ill-defined organic disease	10	6	4	8			2
188.	Sudden death	1	1					1
189.	(a) Cause of death ill-defined	8	5	3	7			1
	(b) Cause of death not specified, or unknown	1		1	1			

TABLE 28.—Deaths from Each Specified Disease and Class of Diseases.

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
ALL CAUSES		36,709	22,634	14,075	34,732	543	169	741
I. GENERAL DISEASES		10,477	6,228	4,249	9,805	188	62	280
No.								
1.	Typhoid fever	454	309	145	416	4	1	8
2.	Typhus fever							
3.	Relapsing fever							
4.	Malaria	101	58	43	89		1	8
5.	Smallpox	16	9	7	15	1		
6.	Measles	134	67	67	130		1	2
7.	Scarlet fever	34	13	21	34			
8.	Whooping-cough	193	87	106	178	5	2	2
9.	(a) Diphtheria	138	74	64	137			1
	(b) Croup	20	12	8	20			
10.	Influenza	146	70	76	140	3		1
11.	Miliary fever							
12.	Asiatic cholera							
13.	Cholera nostras	2	1	1	2			
14.	Dysentery	85	47	38	81		1	3
15.	Plague							
16.	Yellow fever							
17.	Leprosy	3	3		3			
18.	Erysipelas	88	48	40	83			3
19.	Other epidemic diseases	8	7	1	8			
20.	Purulent infection and septicæmia	67	45	22	62	1		3
21.	Glanders							
22.	Anthrax							
23.	Rabies	8	6	2	8			
24.	Tetanus	18	13	5	18			
25.	Mycoses	5	2	3	5			
26.	Pellagra	10	3	7	10			
27.	Beriberi	2	2					
Tuberculosis.								
28.	Tuberculosis of the lungs	4,316	2,856	1,460	3,949	110	40	167
29.	Acute miliary tuberculosis	130	81	49	117	5	1	
30.	Tuberculous meningitis	291	159	132	288	4	4	10
31.	Abdominal tuberculosis	222	111	111	202	5	3	4
32.	Pott's disease	42	26	16	40		1	1
33.	White swellings	11	11		10	1		
34.	Tuberculosis of other organs	64	37	27	59	2		1
35.	Disseminated tuberculosis	52	33	19	48	3		1
36.	Rickets	20	13	7	19			
37.	Syphilis	196	136	60	170	4	2	15
38.	Gonococcus infection	11	8	3	8	1	1	1

Classified by Sex, Race, Nativity, and Age Periods for California: 1912.

Japanese	White				Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
	Born in California	Born in other states	Foreign born	Unknown									
524	9,143	13,617	10,936	1,036	3,942	1,616	977	2,252	3,636	4,062	4,480	4,747	10,988
142	2,805	4,005	2,983	212	412	554	412	1,084	1,658	1,661	1,570	1,389	1,737
25	150	123	119	10	1	35	53	122	106	61	39	19	18
3	7	37	20	4	7	12	9	7	6	15	7	16	22
4	7	7	1	3		1	2	3	5	3	2		
1	100	15	6		29	75	16	7	4	2	1		
	18	13	3		2	17	11	2	2				
6	158	15	5		110	72	8			1			2
	102	30	5		2	67	50	7	1	4	1		
	14	6			4	11	5						
2	25	82	33		16	4	3	2	4	2	9	12	94
	1	1			1								1
	15	45	20	1	4	12	2	-1	2	4	7	8	45
			3							1		1	1
2	32	30	17	4	18	4	2	1	6	13	10	13	21
	5	1	2			1	4		1	2			
1	21	27	13	1	2	4	5	11	6	13	11	8	7
	3	2	3				2	2		1	1	1	1
	9	4	5		3		5	1	1		4	2	2
		4	1						1		2		2
	1	7	2					1	1	1	2	4	1
2										2			
50	960	1,668	1,233	89	32	41	81	600	1,135	949	663	401	295
7	42	35	37	3	3	5	10	28	42	22	10	7	3
15	172	46	38	2	53	105	54	20	37	14	3	3	2
8	87	60	44	2	21	32	13	38	38	30	20	18	12
	19	13	7	1		5	6	13	7	7	3	1	2
	5	4	1			1	3	3	2	1		1	
2	19	25	15		3	4	6	8	11	15	7	4	6
	15	18	14	1	1	4	2	5	10	14	10	6	
1	15	3	1		12	6					1		1
5	92	41	33	4	73	7	2	15	22	32	24	15	6
	4	1	3					2	3	3	2		1

TABLE 28.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
No.	<i>Cancer.</i>							
39.	Cancer* of the buccal cavity.....	84	72	12	82	1		1
40.	Cancer* of the stomach, liver.....	927	565	362	892	5	2	20
41.	Cancer* of the peritonæum, intestines, rectum.....	294	127	167	286	4		2
42.	Cancer* of the female genital organs.....	323		323	318	5		
43.	Cancer* of the breast.....	181		181	176	4		
44.	Cancer* of the skin.....	68	49	19	68			
45.	Cancer* of other or unspecified organs.....	429	282	147	423	2		4
46.	Other tumors (except of female genital organs).....	5	2	3	5			
47.	Acute articular rheumatism.....	74	33	41	71	2		1
48.	Chronic rheumatism and gout.....	89	42	47	87			2
49.	Scurvy.....	3	3		3			
50.	Diabetes.....	418	218	206	404	6		8
51.	Exophthalmic goitre.....	36	4	32	34	1		1
52.	Addison's disease.....	15	7	8	15			
53.	Leuchæmia.....	57	37	20	56	1		
54.	Anæmia, chlorosis.....	153	76	77	151	1		1
55.	Other general diseases.....	41	23	18	37	2		2
56.	Alcoholism (acute or chronic).....	364	319	45	355	4	2	2
57.	Chronic lead poisoning.....	8	8		8			
58.	Other chronic occupation poisonings.....	1	1		1			
59.	Other chronic poisonings.....	20	18	2	14	1		5
II. DISEASES OF THE NERVOUS SYSTEM.....		3,267	1,951	1,316	3,140	50	5	45
60.	Encephalitis.....	59	42	17	59			
61.	(a) Simple meningitis.....	164	95	69	148	4		1
	(b) Cerebrospinal meningitis (undefined).....	121	71	50	113	1	1	2
	(c) Cerebrospinal fever.....	23	14	9	22			
62.	Locomotor ataxia.....	77	66	11	74			1
63.	(a) Acute anterior poliomyelitis.....	123	70	53	120	2	1	
	(b) Other diseases of the spinal cord.....	136	83	53	133	1		2
64.	Cerebral hæmorrhage, apoplexy.....	1,587	877	710	1,534	21	1	29
65.	Softening of the brain.....	83	53	30	80	1	1	1
66.	Paralysis without specified cause.....	247	146	101	237	6		4
67.	General paralysis of the insane.....	210	148	62	203	4	1	2
68.	Other forms of mental alienation.....	88	38	50	83	3		1
69.	Epilepsy.....	128	98	30	124	3		1
70.	Convulsions (nonpuerperal).....	1	1		1			
71.	Convulsions of infants.....	47	36	11	43	1		
72.	Chorea.....	4	2	2	4			
73.	Neuralgia and neuritis.....	13	5	8	18			
74.	Other diseases of the nervous system.....	115	79	36	112	1		1
75.	Diseases of the eyes and their adnexa.....	4	3	1	4			
76.	Diseases of the ears.....	37	24	13	33	2		

*Cancer and other malignant tumors.

by Sex, Race, Nativity, and Age Periods for California: 1912—Continued.

Japanese	White				Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over	
	Born in California	Born in other states	Foreign born	Unknown										
8	1075	84410	86395	212	1	2	3	24	77	9179	19282	46359		
2	3254	130169	12194	31	2	3	12	28	56	83	110	70		
1	194	10037	4927	2	6	3	4	37	47	39	54	36		
	45	201	169	8	2	6	3	10	21	37	77	98	175	
	1	2	2		2	2	14	13	8	7	10	7	11	
	18	28	25		2	2	1	2	7	8	11	12	53	
	9	40	37	1	1	2	3	18	29	22	35	68	87	156
	3	204	140	2	3	1	1	5	9	8	6	6	6	
	12	15	6	1				3	4	2	3	3	3	
	4	9	2		1	9	5	7	6	4	10	10	5	
	23	19	13	1	3	3	2	8	6	20	29	35	47	
	24	77	49	1	5	3	4	3	6	6	4	4	6	
	13	12	11	1		1		3	55	106	92	60	47	
1	64	121	119	51					1	2	2	1	2	
	1	4	3											
			1											
	3	10		1			1	3	1	5	6	4		
27	601	1,461	1,014	64	153	176	107	107	135	274	411	532	1,372	
23	23	11	2	5	6	6	9	8	4	9	6	6	7	
11	83	43	20	2	41	43	18	12	13	12	12	6	7	
4	76	25	10	2	28	37	18	15	7	5	3	3	3	
1	12	6	4		2	6	1	5	2	3	2	1	1	
2	13	36	25					1	1	12	22	20	21	
	82	30	8		19	61	36	4	2				1	
	16	73	41	3	1	3		6	4	15	21	26	60	
2	96	816	597	26	7	2	4	8	23	73	190	332	948	
	4	29	44	3			1	1		3	5	13	60	
	20	130	81	6		1		1	8	17	22	38	160	
	32	102	62	7				2	19	63	58	28	40	
1	16	30	32	5				7	12	14	25	22	8	
	36	51	33	4	2		6	22	24	23	18	13	20	
1							1							
3	41	2			38	9								
	1	1	2				1					1	2	
	2	7	4					2	2	1	2	6		
1	32	49	29	2	6	3	7	10	8	20	19	15	27	
	2	1	1			1				1			2	
2	14	7	10	2	4	4	8	4	4	5	2	6		

TABLE 28.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death	Total deaths	Male	Female	White	Negro	Indian	Chinese
III. DISEASES OF THE CIRCULATORY SYSTEM							
No.	6,376	3,085	2,391	6,148	68	11	123
77. Pericarditis	60	40	20	54	1		5
78. Acute endocarditis	231	148	83	221	4		3
79. Organic diseases of the heart	4,628	2,857	1,771	4,451	56	11	89
80. Angina pectoris	173	108	65	173			
81. Diseases of arteries, atheroma, aneurysm, etc.	1,107	743	364	1,077	7		23
82. Embolism and thrombosis	147	73	74	145			1
83. Diseases of veins (varices, hemorrhoids, phlebitis, etc.)	11	5	6	10			1
84. Diseases of lymphatic system (lymphangitis, etc.)	13	6	7	12			
85. Hemorrhage; other diseases of circulatory system	6	5	1	5			1
IV. DISEASES OF THE RESPIRATORY SYSTEM							
No.	3,840	2,281	1,559	3,601	65	25	72
86. Diseases of the nasal fossae	3	3		3			
87. Diseases of the larynx	21	12	9	20	1		
88. Diseases of the thyroid body	7	1	6	7			
89. Acute bronchitis	202	98	104	186	4	1	1
90. Chronic bronchitis	263	139	124	258	1	1	2
91. Bronchopneumonia	890	493	397	838	11	2	12
92. (a) Lobar pneumonia	1,092	685	407	1,027	19	5	32
(b) Pneumonia (undefined)	386	612	374	903	22	15	20
93. Pleurisy	91	65	26	85	2		2
94. Pulmonary congestion, pulmonary apoplexy	118	71	47	112	3		2
95. Gangrene of the lung	2	1	1	2			
96. Asthma	131	79	52	128	1	1	1
97. Pulmonary emphysema	11	9	2	10			
98. Other diseases of the respiratory system (tuberculosis excepted)	23	13	10	22	1		
V. DISEASES OF THE DIGESTIVE SYSTEM							
No.	3,395	1,969	1,406	3,185	48	17	57
99. Diseases of the mouth and adnexa	23	13	10	22	1		
100. Diseases of the pharynx	40	21	19	37	1		1
101. Diseases of the esophagus	2	2		2			
102. Ulcer of the stomach	131	85	46	121	2		3
103. Other diseases of stomach (cancer excepted)	295	167	128	273	5	5	4
104. Diarrhea and enteritis (under 2 years)	1,656	592	464	982	8	7	8
105. Diarrhea and enteritis (2 years and over)	359	192	167	333	6	2	10
106. Ankylostomiasis	2	1	1	2			
107. Intestinal parasites	9	6	3	9			
108. Appendicitis and typhlitis	319	189	130	308	2		3
109. (a) Hernias	108	59	49	96	4		6
(b) Intestinal obstructions	225	124	101	219	3	2	
110. Other diseases of the intestines	58	32	26	55	3		
111. Acute yellow atrophy of the liver	15	5	10	13	2		
112. Hydatid tumor of the liver	1		1	1			
113. Cirrhosis of the liver	452	331	121	422	8		17
114. Biliary calculi	60	20	40	60			
115. Other diseases of the liver	177	110	67	170	2		3
116. Diseases of the spleen	1		1	1			
117. Simple peritonitis (nonpuerperal)	44	27	17	41	1	1	
118. Other diseases of digestive system (except cancer, tuberculosis)	18	13	5	18			

by Sex, Race, Nativity, and Age Periods for California: 1912—Continued.

Japanese	Born in California	White			Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
		Born in other states	Foreign born	Unknown									
26	509	3,012	2,476	151	22	17	82	185	244	451	764	1,159	3,502
7		29	16	2			3	4	10	10	6	8	19
3	46	102	70	3	2	6	13	17	33	27	31	39	63
21	390	2,127	1,804	130	14	6	64	103	179	345	620	878	2,419
	10	114	48	1				1	2	18	15	36	101
	32	553	482	10	1			1	9	22	78	166	830
1	13	80	48	4	1	1		7	10	24	11	29	64
	3	3	3	1	1			1		2	3	2	2
1	8	2	2		3	3	2	1		3			1
		2	3			1			1			1	3
77	1,129	1,228	1,165	79	643	336	82	107	211	284	373	431	1,373
1		1	1		1				1	1			
14		3	2	1	2	8	4	1	5				
		4	3				1	1	1	1	2	1	
10	90	34	62		72	29	4	1	2	1	6	15	72
1	24	107	122	5	16	3	1	1		9	15	29	189
27	406	226	196	10	287	130	22	8	34	39	54	68	248
9	236	358	359	29	106	74	20	59	89	132	156	147	310
26	296	346	265	26	151	82	25	28	58	74	95	124	349
2	15	30	38	2	2	4	1	6	12	11	19	9	27
1	12	50	49	1	6	3	2			3	10	9	85
		1	1							1	1		
12		56	55	5		2	1	1	4	9	11	24	79
1	1	7	2		1	1	1					1	7
	2	10	10					1	5	3	3	4	7
88	1,467	893	785	40	976	320	79	148	199	291	361	364	657
13		4	5		5	7	1		4			2	4
1	16	14	5	2	2	7	8	6	5	3	4	4	1
	1		1			1						1	
5	22	54	41	4		1		9	16	19	29	28	29
8	66	112	92	3	36	11	7	5	17	20	37	37	125
51	940	28	14		883	173							
8	90	146	93	4		85	11	15	10	23	36	39	140
	1									1			1
2			5	1	1			4	2	1	1		
6	120	113	73	2	1	12	36	64	59	72	39	17	19
2	10	31	52	3	5	3		2	3	9	21	21	44
1	66	82	68	3	30	13	10	17	18	24	30	24	59
	5	20	24	3	3	1	1	3	8	6	12	12	12
	1	5	7		1			1	2	3	1	1	6
			1									1	
5	58	160	204	10	3		2	3	26	75	107	110	126
	5	84	20	1					4	7	8	17	24
	23	75	61	1	6	3	2	9	16	18	23	40	60
	1					1							
1	9	19	12	1		2	1	10	6	3	8	7	7
	5	4	7	2					3	7	5	3	

TABLE 28.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
VI. DISEASES OF THE GENITO-URINARY SYSTEM								
No.		2,711	1,692	1,019	2,588	41	8	50
119.	Acute nephritis	130	80	50	121	2	1	2
120.	Bright's disease	2,055	1,327	728	1,958	32	5	51
121.	Chyluria							
122.	Other diseases of the kidneys and adnexa	63	40	23	63			
123.	Calculi of the urinary passages	9	7	2	8			1
124.	Diseases of the bladder	132	121	11	129			2
125.	Diseases of the urethra, urinary abscess, etc.	8	7	1	8			
126.	Diseases of the prostate	102	102		100		1	1
127.	Nonvenereal diseases of male genital organs	8	8		7			
128.	Uterine hemorrhage (nonpuerperal)							
129.	Uterine tumor (noncancerous)	62		62	59	3		
130.	Other diseases of the uterus	41		41	36	1	1	2
131.	Cysts and other tumors of the ovary	34		34	34			
132.	Salpingitis and other diseases of female genital organs	67		67	60	3		
133.	Nonpuerperal diseases of the breast (cancer excepted)							
VII. THE PUERPERAL STATE								
		363		363	347	3	1	
134.	Accidents of pregnancy	74		74	69			
135.	Puerperal hemorrhage	46		46	43	2		
136.	Other accidents of labor	24		24	22	1		
137.	Puerperal septicæmia	93		93	92			
138.	Puerperal albuminuria and convulsions	102		102	99		1	
139.	Puerperal phlegmasia alba dolens, embolus, sudden death	1		1	1			
140.	Following childbirth (not otherwise specified)	23		23	21			
141.	Puerperal diseases of the breast							
VIII. DISEASES OF THE SKIN								
		138	86	52	132	3	1	
142.	Gangrene	63	44	19	62		1	
143.	Furuncle	17	10	7	16			
144.	Acute abscess	32	20	12	29	2		
145.	Other diseases of the skin and adnexa	26	12	14	25	1		
IX. DISEASES OF THE BONES								
		55	31	24	55			
146.	Diseases of the bones (tuberculosis excepted)	46	28	18	46			
147.	Diseases of the joints (exclusive of tuberculosis and rheumatism)	4	2	2	4			
148.	Amputations	2	1	1	2			
149.	Other diseases of the organs of locomotion	3		3	3			
X. MALFORMATIONS								
		203	192	101	280	2	2	1
150.	(a) Hydrocephalus	34	24	10	33	1		
	(b) Congenital malformation of heart	190	133	66	190		2	1
	(c) Other congenital malformations	60	35	25	57	1		
XI. DISEASES OF EARLY INFANCY								
		1,369	771	598	1,300	14	5	7
151.	(a) Premature birth	795	445	350	757	8	2	6
	(b) Congenital debility, "atrophy," "marasmus," etc.	283	156	127	267	3	2	
152.	Other diseases peculiar to early infancy	283	164	119	268	3	1	1
153.	Lack of care	8	6	2	8			

by Sex, Race, Nativity, and Age Periods for California: 1912—Continued.

Japanese	Born in California	White			Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
		Born in other states	Foreign born	Unknown									
26	509	3,012	2,476	151	22	17	82	185	244	451	764	1,159	3,502
	7	29	16	2			3	4	10	10	6	8	19
3	46	102	70	3	2	6	13	17	33	27	31	39	63
21	390	2,127	1,804	130	14	6	64	108	179	345	620	878	2,419
	10	114	48	1				1	2	18	15	36	101
	32	553	482	10	1			1	9	22	78	166	830
1	13	80	48	4	1	1		7	10	24	11	29	64
	3	3	3	1	1			1		2	3	2	2
1	8	2	2		3	3	2	1		3			1
		2	3			1			1			1	3
77	1,129	1,228	1,165	79	643	336	82	107	211	284	373	431	1,373
	1	1	1		1				1	1			
	14	3	2	1	2	8	4	1	5		1		
		4	3				1	1	1	1	2	1	
10	90	34	62		72	29	4	1	2	1	6	15	72
1	24	107	122	5	16	3	1	1		9	15	29	189
27	406	226	196	10	287	130	22	8	34	39	54	68	248
9	236	358	359	29	105	74	20	59	89	132	156	147	310
26	296	346	265	26	151	82	25	28	58	74	95	124	349
2	15	30	88	2	2	4	1	6	12	11	19	9	27
	1	12	50	49	1	6	3	2		3	10	9	85
		1	1							1	1		
	12	56	55	5		2	1	1	4	9	11	24	79
1	1	7	2		1	1	1					1	7
	2	10	10					1	5	3	3	4	7
86	1,467	893	785	40	976	320	79	148	199	291	361	364	657
	13	4	5		5	7	1		4			2	4
1	16	14	5	2	2	7	8	6	5	3	4	4	1
	1		1			1						1	
5	22	54	41	4		1		9	16	19	29	28	29
	8	66	112	92	3	36	11	5	17	20	37	37	125
51	940	28	14		883	173							
8	90	146	93	4		85	11	15	10	23	36	39	140
	1									1			1
	2		5	1	1			4	2	1	1		
6	120	113	73	2	1	12	36	64	59	72	39	17	19
2	10	31	52	3	5	3		2	3	9	21	21	44
1	66	82	68	3	30	13	10	17	18	24	30	24	59
	6	20	24	3	3	1	1	3	8	6	12	12	12
	1	5	7		1			1	2	3	1	1	6
		1										1	
5	58	150	204	10	3		2	3	26	75	107	110	126
	5	84	20	1		3			4	7	8	17	24
	33	75	61	1	6	3	2	9	16	18	23	40	60
	1					1							
1	9	19	12	1		2	1	10	6	3	8	7	7
	5	4	7	2					3	7	5	3	

TABLE 28.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
VI. DISEASES OF THE GENITO-URINARY SYSTEM								
No.		2,711	1,092	1,019	2,583	41	8	59
119.	Acute nephritis	130	80	50	121	2	1	2
120.	Bright's disease	2,065	1,327	728	1,968	32	5	51
121.	Ohyluria							
122.	Other diseases of the kidneys and adnexa	63	40	23	63			
123.	Calculi of the urinary passages	9	7	2	8			1
124.	Diseases of the bladder	132	121	11	129			2
125.	Diseases of the urethra, urinary abscess, etc.	8	7	1	8			
126.	Diseases of the prostate	102	102		100		1	1
127.	Nonvenereal diseases of male genital organs	8	8		7			
128.	Uterine hemorrhage (nonpuerperal)							
129.	Uterine tumor (noncancerous)	62		62	59	3		
130.	Other diseases of the uterus	41		41	36	1	1	2
131.	Cysts and other tumors of the ovary	34		34	34			
132.	Salpingitis and other diseases of female genital organs	67		67	60	3		
133.	Nonpuerperal diseases of the breast (cancer excepted)							
VII. THE PUERPERAL STATE								
		363		363	347	3	1	
134.	Accidents of pregnancy	74		74	69			
135.	Puerperal hemorrhage	46		46	43	2		
136.	Other accidents of labor	24		24	22	1		
137.	Puerperal septicæmia	93		93	92			
138.	Puerperal albuminaria and convulsions	102		102	99		1	
139.	Puerperal phlegmasia alba dolens, embolus, sudden death	1		1	1			
140.	Following childbirth (not otherwise specified)	23		23	21			
141.	Puerperal diseases of the breast							
VIII. DISEASES OF THE SKIN								
		138	86	52	132	3	1	
142.	Gangrene	63	44	19	62		1	
143.	Furuncle	17	10	7	16			
144.	Acute abscess	32	20	12	29	2		
145.	Other diseases of the skin and adnexa	26	12	14	25	1		
IX. DISEASES OF THE BONES								
		55	31	24	55			
146.	Diseases of the bones (tuberculosis excepted)	46	28	18	46			
147.	Diseases of the joints (exclusive of tuberculosis and rheumatism)	4	2	2	4			
148.	Amputations	2	1	1	2			
149.	Other diseases of the organs of locomotion	3		3	3			
X. MALFORMATIONS								
		203	192	101	280	2	2	1
150.	(a) Hydrocephalus	34	24	10	33	1		
	(b) Congenital malformation of heart	199	133	66	190		2	1
	(c) Other congenital malformations	60	35	25	57	1		
XI. DISEASES OF EARLY INFANCY								
		1,309	771	598	1,300	14	5	7
151.	(a) Premature birth	795	445	350	757	8	2	6
	(b) Congenital debility, "atrophy," "marasmus," etc.	283	156	127	267	3	2	
152.	Other diseases peculiar to early infancy	283	164	119	268	3	1	1
153.	Lack of care	8	6	2	8			

by Sex, Race, Nativity, and Age Periods for California: 1912—Continued.

Japanese	Born in California	White Born in other states	Foreign born	Unknown	Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
20	329	1,334	874	46	24	17	28	89	196	285	415	481	1,177
4	26	51	41	8	10	10	2	12	15	16	19	13	33
9	222	1,030	664	42	6	6	20	43	118	204	835	424	890
	6	27	30		4		2	1	5	9	9	5	28
	2	6					1			2	1	1	4
1	6	77	45	1	1		1	2	1	2	7	16	102
	1	2	5						2	1	2		8
		64	36						2			12	88
1	4	8			3	1	1		1			1	1
	14	25	20					1	8	16	20	6	11
1	12	12	12					8	11	10	9	1	2
	13	11	10				1	5	8	8	5	1	6
4	53	26	11					17	24	17	8	1	
12	24	145	104	4				108	155	100			
5	29	27	12	1				24	34	16			
1	3	23	17					9	19	18			
1	5	8	8	1				12	6	6			
1	27	59	36					30	43	20			
2	26	47	25	1				29	45	30			
		1								1			
2	4	10	6	1				4	10	9			
2	34	57	39	2	17	4	2	6	11	10	10	15	63
	4	34	22	2	1	1		2	2	3	3	4	52
1	8	5	3		6			2	2	3	1	3	
1	10	11	8		2	1	2	8	4	7	6	4	3
	12	7	6		8	2		1	3			4	8
	21	21	13		3	9	10	5	5	1	7	4	11
	20	16	10		3	9	10	5	3		3	4	9
	1	1	2						1	1	1		1
		2							1		1		
		2	1								2		1
8	270	8	2		266	20	4	2					1
	30	2	1		19	9	4	1					1
6	185	4	1		193	5		1					
2	55	2			54	6							
43	1,297	3			1,369								
22	756	1			796								
11	295	2			283								
10	268				283								
	8				8								

TABLE 28.—Deaths from Each Specified Disease and Class of Diseases, Classified

Cause of death		Total deaths	Male	Female	White	Negro	Indian	Chinese
XII. OLD AGE		651	342	309	629	8	7	7
No.								
154.	Senility	651	342	309	629	8	7	7
XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES		3,755	3,072	683	3,512	52	25	89
155.	Suicide by poison	145	110	35	141	1		2
156.	Suicide by asphyxia	98	70	23	92	1		
157.	Suicide by hanging or strangulation	82	68	14	68			8
158.	Suicide by drowning	34	24	10	33	1		
159.	Suicide by firearms	349	318	31	332	5		3
160.	Suicide by cutting or piercing instruments	72	68	4	65	1		2
161.	Suicide by jumping from a high place	13	8	5	12			1
162.	Suicide by crushing	9	8	1	9			
163.	Other suicides	6	3	3	6			
164.	Poisoning by food	79	46	33	73	3		
165.	Other acute poisonings	70	30	40	67			1
161.	Conflagration	69	50	19	57	3	3	6
167.	Burns (conflagration excepted)	154	83	71	146	3	1	2
168.	Absorption of deleterious gases (conflagration excepted)	117	95	22	112	4		1
169.	Accidental drowning	318	290	28	300	3	1	3
170.	Traumatism by firearms	92	83	9	87		4	
171.	Traumatism by cutting or piercing instruments	16	13	3	14			2
172.	Traumatism by fall	374	252	122	366	4	1	2
173.	Traumatism in mines and quarries	56	56		55		1	
174.	Traumatism by machines	78	78		71	1	1	2
175.	(a) Railroad accidents and injuries	355	325	30	340	1	5	4
	(b) Street car accidents and injuries	110	81	29	102	3		2
	(c) Automobile accidents and injuries	194	143	51	189	1		3
	(d) Injuries by other vehicles	152	139	13	137	2	1	3
	(e) Landslide, other crushing	69	69		67	1	1	
176.	Injuries by animals	67	64	3	62	1		1
177.	Starvation	11	9	2	9	1	1	
178.	Excessive cold	10	9	1	10			
179.	Effects of heat	17	14	3	17			
180.	Lightning	2	2		2			
181.	Electricity (lightning excepted)	50	49	1	50			
182.	Homicide by firearms	243	209	34	190	8	1	35
183.	Homicide by cutting or piercing instruments	47	41	6	45	1		
184.	Homicide by other means	53	36	17	50	1		1
185.	Fractures (cause not specified)	9	5	4	9			
186.	Other injuries	140	124	16	127	2	4	5
XIV. ILL-DEFINED DISEASES		19	14	5	15	1		1
187.	Ill-defined organic disease	3	1	2	3			
188.	Sudden death							
189.	(a) Cause of death ill-defined	9	6	3	8			
	(b) Cause of death not specified, or unknown	7	7		4	1		1

by Sex, Race, Nativity, and Age Periods for California: 1912—Continued.

Japanese	Born in California	White Born in other states	Foreign born	Unknown	Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
---	3	327	290	9	---	---	---	---	---	---	---	10	641
---	3	327	290	9	---	---	---	---	---	---	---	10	641
77	780	1,121	1,186	425	57	162	171	461	820	701	578	357	453
1	29	42	41	29	---	---	---	19	36	33	30	12	15
---	9	33	32	18	---	---	---	5	15	26	31	8	8
6	8	17	34	9	---	---	---	7	12	22	18	13	10
---	8	8	12	5	---	---	---	3	5	9	5	12	---
9	49	129	108	46	---	---	1	29	105	75	65	42	32
4	7	25	24	9	---	---	---	3	11	26	17	9	6
---	1	4	7	---	---	---	---	---	6	3	1	1	2
---	---	2	1	6	---	---	---	---	5	1	3	---	---
---	2	1	1	2	---	---	---	---	1	2	---	2	1
3	39	20	13	1	12	18	10	4	5	11	7	5	7
2	31	21	11	4	8	17	1	8	18	11	7	3	2
---	11	11	26	9	---	8	2	3	9	12	12	7	16
2	63	43	32	8	6	49	19	9	18	15	15	8	15
---	25	24	50	13	10	---	---	8	30	13	15	19	22
11	83	63	90	64	2	18	24	61	68	55	58	19	13
1	37	33	15	2	---	4	20	34	17	8	5	2	2
---	3	4	4	3	---	1	1	1	2	1	5	4	1
1	69	153	123	16	6	17	20	23	34	41	37	43	153
---	12	8	31	4	---	---	---	8	18	15	9	3	3
3	17	20	32	2	---	---	1	19	26	21	9	2	1
5	45	104	104	87	2	4	12	46	95	80	50	29	37
3	15	39	41	7	---	3	9	10	16	19	17	17	19
1	51	88	37	13	---	5	17	42	36	26	27	21	20
9	32	45	50	10	---	10	13	17	21	25	35	11	20
---	15	15	34	3	---	1	2	11	16	22	8	9	---
3	16	19	22	5	1	1	5	7	13	8	11	14	7
---	3	1	3	2	2	---	---	---	1	1	1	3	8
---	2	1	3	4	---	---	---	1	---	3	8	1	2
---	6	3	7	1	3	---	---	2	2	3	2	2	3
---	---	---	2	---	---	---	---	---	1	1	---	---	---
---	10	25	12	3	---	---	---	10	24	8	6	2	---
9	38	46	86	20	1	---	3	32	88	64	25	21	9
1	7	11	22	5	---	---	1	12	17	10	5	2	---
1	11	16	16	7	5	---	1	5	16	9	11	2	4
---	---	2	6	1	---	1	---	---	1	2	---	---	5
2	26	40	54	7	4	5	9	22	32	20	24	9	15
---	---	---	---	---	---	---	---	---	---	---	---	---	---
2	4	2	5	4	---	1	---	---	3	4	5	5	1
---	1	2	---	---	---	---	---	---	---	1	---	1	1
1	3	---	4	1	---	1	---	---	2	1	3	2	---
1	---	---	1	3	---	---	---	---	1	2	2	2	---

TABLE 29.—Deaths from Certain Principal Causes, with Proportion

Cause of death	The State	Coast counties						Northern
		Del Norte	Humboldt	Lake	Mendocino	Napa	Honoma	
Deaths.								
ALL CAUSES	38,599	30	422	97	325	535	735	
Typhoid fever	436		5		3	7	6	
Malarial fever	77						2	
Smallpox	15							
Measles	154							
Scarlet fever	85		1					
Whooping-cough	128	1	1			1	4	
Diphtheria and croup	186		1		1	1	3	
Influenza	220		2	1			6	
Plague	2							
Other epidemic diseases	180		4	2	1	4	7	
Tuberculosis of lungs	4,536	4	30	12	40	71	61	
Tuberculosis of other organs	863		8	1	7	9	9	
Cancer	2,566	1	34	5	13	23	50	
Other general diseases	1,733	2	19	3	11	23	30	
Meningitis	405	3	5	1	3	3	10	
Other diseases of nervous system	3,315	3	34	6	22	34	69	
Diseases of circulatory system	6,281	4	81	17	47	128	133	
Pneumonia and broncho-pneumonia	2,938	2	27	9	20	31	77	
Other diseases of respiratory system	868		8	7	8	9	17	
Diarrhœa and enteritis, under 2 years	1,270		8	8	10	1	15	
Diarrhœa and enteritis, 2 years and over	369		7	2	2	7	8	
Other diseases of digestive system	1,995	1	21	8	25	24	43	
Bright's disease and nephritis	2,392	5	19	4	21	34	46	
Childbirth	395		4	1	4	4	3	
Diseases of early infancy	1,444		13	3	13	3	29	
Suicide	837	1	12	2	2	9	12	
Other violence	3,133	2	58	3	45	22	67	
All other causes	1,774	1	20	7	16	37	28	
Proportion per 1,000 Total Deaths.								
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	
Typhoid fever	11.3		11.8		9.2	13.1	8.2	
Malarial fever	2.0						2.7	
Smallpox	0.4							
Measles	4.0							
Scarlet fever	2.2		2.4					
Whooping-cough	3.3	33.4	2.4			1.9	5.4	
Diphtheria and croup	4.8		2.4		3.1	1.9	4.1	
Influenza	5.7		4.7	10.3			8.2	
Plague	*							
Other epidemic diseases	4.7		9.5	20.6	3.1	7.5	9.5	
Tuberculosis of lungs	117.5	133.3	71.1	123.7	123.1	132.7	83.0	
Tuberculosis of other organs	22.4		19.0	10.3	21.5	16.8	12.2	
Cancer	66.4	33.3	80.6	51.6	40.0	43.0	68.0	
Other general diseases	44.0	66.7	45.0	30.9	33.9	43.0	40.8	
Meningitis	10.5	100.0	11.8	10.3	9.2	5.6	13.6	
Other diseases of nervous system	85.9	100.0	80.6	61.9	98.5	157.0	93.9	
Diseases of circulatory system	162.7	133.3	191.9	175.3	144.6	239.2	181.0	
Pneumonia and broncho-pneumonia	76.1	66.7	64.0	92.8	61.5	57.9	104.7	
Other diseases of respiratory system	22.5		19.0	72.2	24.6	16.8	23.1	
Diarrhœa and enteritis, under 2 years	32.9		18.9	30.9	30.8	1.9	30.4	
Diarrhœa and enteritis, 2 years and over	9.6		16.6	20.6	6.2	18.1	10.9	
Other diseases of digestive system	51.7	33.3	49.8	82.5	76.9	44.9	58.5	
Bright's disease and nephritis	62.0	166.7	45.0	41.2	64.6	68.5	62.6	
Childbirth	10.2		9.5	10.3	12.3	7.5	4.1	
Diseases of early infancy	37.4		30.8	30.9	40.0	5.6	39.5	
Suicide	21.7	33.3	28.4	20.6	6.2	16.8	16.3	
Other violence	81.2	66.7	137.4	30.9	141.5	41.1	91.2	
All other causes	46.0	33.3	47.4	72.2	49.2	69.2	38.1	

than one tenth of 1 per thousand.

per 1,000 Total Deaths, for Counties Arranged Geographically: 1913.

California

Trinity	Butte	Colusa	Glenn	Lassen	Modoc	Nevada	Interior counties				Shasta	Sierra	Stanislaus	Sutter
							Placer	Plumas						
43	367	87	63	74	46	235	301	59	192	46	205	76		
	8	3		3	3	3	3	1	1		1	1		1
	6		1				3		4					1
													9	
	1						1						2	
	3	2		1		1	2		1		1		1	
	6					1	1						2	1
	2	1	1	2		1	5	1	2					1
3	32	4	2	6	2	24	43	2	20	2	20	6		
	8		1	1		2	4		2		2			
2	14	8	5	1	1	11	15	4	5		12	3		
1	21	4	6	5	5	16	18	2	2	2	9	3		
	2					2	3		3			1		
2	24	8	8	6	3	30	16	6	11	3	21	2		
9	54	14	11	7	9	37	34	10	34	7	31	11		
4	27	4	5	12	2	10	32	3	18	3	8	6		
3	4	1	2			4	7	2	5	2	2	4		
	10	4	1	3	1	3	5		6		5	5		
	7	2				2	7		1		2	2		
3	24	3	4	2	5	15	8	2	6	6	14	2		
4	30	9	3	3	2	7	19	1	11	4	12	6		
1	2	2	2		2	4	4		2	1	5			
1	18	2	2	1	4	14	10	3	8	2	4	1		
	10	3	2	5	2	2	4	5	2	1	4	2		
6	34	6	6	11	2	31	42	9	36	7	21	9		
4	20	7	1	5	3	15	15	8	12	6	17	9		
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
	21.8	34.5		40.6	65.2	12.3	10.0	17.0	5.2		4.9	13.2		
	16.3		15.9				10.0		20.8			13.2		
								3.3			43.9			
	2.7			13.5			6.6		5.2		9.8			
											4.9			
	8.2	23.0				4.3	3.3				4.9	13.2		
	16.3					4.3					9.8			
	5.5	11.5	15.9	27.0		4.3	16.6	17.0	10.4			13.2		
69.8	87.2	46.0	31.8	81.1	43.5	102.1	142.8	33.9	104.2	43.5	97.6	78.9		
	21.8		15.9	13.5		8.5	13.3		10.4		9.8			
46.5	38.1	91.9	79.4	13.5	21.7	46.8	49.8	67.8	26.0		58.5	39.5		
23.3	57.2	46.0	95.2	67.6	108.7	68.1	59.8	33.9	10.4	43.5	43.9	39.5		
	5.5					8.5	10.0		15.6			13.2		
46.5	65.4	91.9	127.0	81.1	65.2	127.6	53.2	101.7	57.3	65.2	102.4	26.3		
399.3	147.1	180.9	174.6	94.6	196.6	157.4	113.0	169.5	177.1	152.2	151.2	144.7		
98.0	73.6	46.0	79.4	162.2	43.5	42.6	106.3	50.8	93.8	65.2	39.0	78.9		
69.8	10.9	11.5	31.7			17.0	23.3	33.9	26.0	43.5	9.8	52.6		
	27.3	46.0	15.9	40.5	21.7	12.8	16.6		31.3		24.4	65.8		
	19.1	23.0				8.5	23.3		5.2		9.7	26.3		
69.8	65.4	34.5	63.5	27.0	108.7	63.8	26.6	33.9	31.3	130.4	68.3	26.3		
93.0	81.7	103.4	47.6	40.5	43.5	29.8	63.1	17.0	57.3	87.0	58.5	78.0		
23.3	5.5	23.0	31.7		43.5	17.0	13.3		10.4	21.7	24.4			
23.2	49.0	23.0	31.7	13.5	87.0	59.6	33.2	50.8	41.7	43.5	19.5	13.2		
	27.3	34.5	31.7	67.6	43.5	8.5	13.3	84.7	10.4	21.7	19.5	26.3		
130.5	92.6	69.0	95.2	148.6	43.5	131.9	139.5	152.5	187.5	152.2	102.4	118.4		
93.0	54.5	80.4	15.9	67.6	65.2	63.8	49.8	135.6	62.5	130.4	82.9	118.4		

TABLE 29.—Deaths from Certain Principal Causes, with Proportion per

Cause of death	Central California					
	Interior counties					
	Madera	Mariposa	Merced	Mono	Sacramento	San Joaquin
Deaths.						
ALL CAUSES	103	28	183	5	1,301	954
Typhoid fever	1		2		35	14
Malarial fever			2		10	1
Smallpox						1
Measles	1		1		1	1
Scarlet fever					5	1
Whooping-cough					3	4
Diphtheria and croup			1		6	2
Influenza	1		1		4	4
Plague						
Other epidemic diseases					9	8
Tuberculosis of lungs	11	1	18		155	138
Tuberculosis of other organs	1		8		31	30
Cancer	12	4	7		80	51
Other general diseases	2	1	6		73	38
Meningitis			4		17	14
Other diseases of nervous system	7	1	6		89	128
Diseases of circulatory system	16	4	25	3	162	103
Pneumonia and broncho-pneumonia	6	2	24	1	108	63
Other diseases of respiratory system	1	1	4		23	18
Diarrhœa and enteritis, under 2 years	3		16		58	12
Diarrhœa and enteritis, 2 years and over	1	2	2		10	10
Other diseases of digestive system	4	3	10		76	43
Bright's disease and nephritis	4	1	1		77	73
Childbirth	1		2		18	6
Diseases of early infancy	8		7	1	58	26
Suicide	1		7		21	20
Other violence	17	6	22		125	88
All other causes	5	2	10		47	57
Proportion per 1,000 Total Deaths.						
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	9.7		10.8		26.9	14.7
Malarial fever			10.7		7.7	1.0
Smallpox						1.0
Measles	9.7		5.4		0.8	1.0
Scarlet fever					3.8	1.0
Whooping-cough					2.3	4.2
Diphtheria and croup			5.4		4.6	2.1
Influenza	9.7		5.4		3.1	4.3
Plague						
Other epidemic diseases					6.9	8.4
Tuberculosis of lungs	106.8	35.7	93.8		119.1	144.7
Tuberculosis of other organs	9.7		43.0		23.8	31.4
Cancer	116.5	142.9	37.6		61.5	53.5
Other general diseases	19.4	35.7	32.3		56.1	39.8
Meningitis			21.5		13.1	14.7
Other diseases of nervous system	68.0	35.7	32.3		68.4	134.2
Diseases of circulatory system	155.3	142.9	134.4	600.0	124.5	108.0
Pneumonia and broncho-pneumonia	58.3	71.4	129.0	200.0	83.0	66.0
Other diseases of respiratory system	9.7	35.7	21.5		17.7	18.9
Diarrhœa and enteritis, under 2 years	29.1		86.0		44.6	12.6
Diarrhœa and enteritis, 2 years and over	9.7	71.4	10.7		7.7	10.5
Other diseases of digestive system	38.8	107.2	53.8		58.4	45.1
Bright's disease and nephritis	38.8	35.7	5.4		59.2	76.3
Childbirth	9.7		10.7		13.8	6.3
Diseases of early infancy	77.7		37.6	200.0	44.6	27.3
Suicide	9.7		37.6		16.2	21.0
Other violence	165.1	214.3	118.3		96.1	92.2
All other causes	48.6	71.4	53.8		36.1	59.7

1,000 Total Deaths, for Counties Arranged Geographically: 1913—Continued.

California

Coast counties					Interior counties							
Monterey	San Benito	San Luis Obispo	Santa Clara	Santa Cruz	Alpine	Amador	Calaveras	El Dorado	Fresno	Inyo	Kern	Kings
320	92	205	1,444	370	3	152	111	119	1,106	44	524	203
5	1	3	13	1	1	2	1	1	23	1	14	4
			1			3	4		5		2	3
2		1	3	2					10		3	2
									23		9	
1		1	5	1					1		1	1
	1		4			2			11		5	
6	2		10	3		1	1	3	6	1	3	5
	1											
2		1	7			1			9		2	
24	11	27	142	43		21	7	9	128	2	66	20
10	1	4	41	8		4			31		10	5
16	6	11	108	23		9	8	4	66	2	17	9
16	2	10	59	9		4	9	2	39	2	23	3
2		1	10	3		2			18		1	3
48	9	18	136	35		12	11	10	67	6	33	18
49	23	48	270	78		8	15	21	121	5	50	19
26	5	14	93	27	1	6	9	9	66	7	43	21
10	1	4	40	10		7	7	4	13		10	
13	2	6	47	13		6			93	1	24	11
5		2	19	7		1	2	1	12	1	8	
13	4	15	60	16	1	12	10	5	78	2	32	11
25	5	3	80	23		13	8	13	56	5	20	9
1		2	16	4		1		2	24		4	4
9	3	4	45	14		8	6	5	64	2	31	21
4	3	2	22	7		4	1	5	10	2	17	3
23	7	20	81	25		18	6	11	86	2	77	19
10	5	8	82	18		7	6	14	46	3	14	12
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
15.6	10.9	14.6	9.0	2.7	333.4	13.2	9.0	8.4	20.8	22.7	26.7	19.7
			0.7			19.7	36.0		4.5		3.8	14.8
6.3		4.9	2.1	5.4					9.0		5.7	9.9
									20.8		17.2	
3.1		4.9	3.5	2.7					0.9		1.9	4.9
	10.9		2.8			13.2			9.9		9.5	
18.8	21.7		6.9	8.1		6.6	9.0	25.2	5.4	22.7	5.7	24.6
	10.9											
6.3		4.9	4.8			6.6			8.1		3.8	
75.0	119.6	131.7	98.3	116.2		138.1	63.1	75.6	115.7	45.5	125.9	98.5
31.3	10.9	19.5	28.4	21.6		26.3			28.0		19.1	24.6
50.0	65.2	53.7	74.8	62.2		59.2	72.1	33.6	59.7	45.5	32.5	44.3
50.0	21.7	48.8	40.9	24.3		26.3	81.1	16.8	35.3	45.5	53.4	14.8
6.3		4.9	6.9	8.1		13.2			16.3		1.9	14.8
150.0	97.8	87.8	128.8	94.6		78.9	99.1	84.0	60.6	136.4	63.0	88.7
153.1	250.0	234.1	187.0	210.8		52.0	135.1	176.5	109.4	113.6	96.4	93.6
81.3	54.4	68.3	64.4	73.0	333.3	39.5	81.1	75.6	59.7	159.1	82.1	103.5
21.2	10.9	19.5	27.7	27.0		46.1	63.1	33.6	11.8		19.1	
40.6	21.7	29.3	32.5	35.1		39.5			84.1	22.7	45.8	54.2
15.6		9.8	13.2	18.9		6.6	18.0	8.4	10.9	22.7	15.3	
40.6	45.5	73.2	41.5	43.3	333.3	78.9	90.1	42.0	70.5	45.5	61.1	54.2
78.1	54.3	14.6	55.4	62.2		85.5	72.1	109.3	50.6	113.6	38.2	44.3
3.1		9.7	11.1	10.8		6.6		16.8	21.7		7.6	19.7
28.1	32.6	19.5	31.2	37.8		52.6	54.1	42.0	57.9	45.5	59.2	103.4
12.5	32.6	9.7	15.2	18.9		26.3	9.0	42.0	9.0	45.4	32.5	14.8
71.9	76.1	97.6	56.1	67.6		118.4	54.0	92.5	77.8	45.4	146.9	93.6
31.2	54.3	39.0	56.8	48.7		46.1	54.0	117.7	41.6	68.2	26.7	59.1

TABLE 29.—Deaths from Certain Principal Causes, with Proportion per

Cause of death	Central California					
	Interior counties					
	Madera	Mariposa	Mered	Mono	Sacramento	San Joaquin
Deaths.						
ALL CAUSES	103	28	185	5	1,301	924
Typhoid fever	1		2		35	14
Malarial fever			2		10	1
Smallpox						1
Measles	1		1		1	1
Scarlet fever					5	1
Whooping-cough					3	4
Diphtheria and croup			1		6	2
Influenza	1		1		4	4
Plague						
Other epidemic diseases					9	8
Tuberculosis of lungs	11	1	18		155	138
Tuberculosis of other organs	1		8		31	30
Cancer	12	4	7		80	51
Other general diseases	2	1	6		73	38
Meningitis			4		17	14
Other diseases of nervous system	7	1	6		89	128
Diseases of circulatory system	16	4	25	3	162	103
Pneumonia and broncho-pneumonia	6	2	24	1	106	63
Other diseases of respiratory system	1	1	4		23	18
Diarrhœa and enteritis, under 2 years	3		16		58	12
Diarrhœa and enteritis, 2 years and over	1	2	2		10	10
Other diseases of digestive system	4	3	10		76	43
Bright's disease and nephritis	4	1	1		77	73
Childbirth	1		2		18	6
Diseases of early infancy	8		7	1	58	36
Suicide	1		7		21	20
Other violence	17	6	22		125	88
All other causes	5	2	10		47	57
Proportion per 1,000 Total Deaths.						
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	9.7		10.8		26.9	14.7
Malarial fever			10.7		7.7	1.0
Smallpox						1.0
Measles	9.7		5.4		0.8	1.0
Scarlet fever					3.8	1.0
Whooping-cough					2.3	4.2
Diphtheria and croup			5.4		4.6	2.1
Influenza	9.7		5.4		3.1	4.2
Plague						
Other epidemic diseases					6.9	8.4
Tuberculosis of lungs	106.8	35.7	98.8		119.1	144.7
Tuberculosis of other organs	9.7		43.0		23.8	31.4
Cancer	116.5	142.9	37.6		61.5	53.5
Other general diseases	19.4	35.7	32.3		56.1	39.4
Meningitis			21.5		13.1	14.7
Other diseases of nervous system	68.0	35.7	32.3		68.4	134.2
Diseases of circulatory system	155.3	142.9	134.4	600.0	124.5	108.0
Pneumonia and broncho-pneumonia	58.3	71.4	129.0	200.0	83.0	66.6
Other diseases of respiratory system	9.7	35.7	21.5		17.7	18.0
Diarrhœa and enteritis, under 2 years	29.1		86.0		44.6	12.6
Diarrhœa and enteritis, 2 years and over	9.7	71.4	10.7		7.7	10.5
Other diseases of digestive system	38.8	107.2	53.8		58.4	45.1
Bright's disease and nephritis	38.8	35.7	5.4		59.2	76.3
Childbirth	9.7		10.7		13.8	6.3
Diseases of early infancy	77.7		37.6	200.0	44.6	27.3
Suicide	9.7		37.6		16.2	21.0
Other violence	165.1	214.3	118.3		96.1	92.2
All other causes	48.6	71.4	53.8		36.1	59.7

1,000 Total Deaths, for Counties Arranged Geographically: 1913—Concluded.

Continued					Southern California							
Continued					Los Angeles	Other counties						
San Diego	Stanislaus	Tulare	Yuba	Yolo	Los Angeles	Imperial	Orange	Riverside	San Bernardino	San Diego	Santa Barbara	Ventura
371	330	415	133	179	9,705	266	541	460	1,048	1,397	353	280
3	10	5	1	2	67	12	10	7	9	16	1	-----
-----	-----	4	-----	4	5	-----	-----	-----	-----	-----	-----	-----
3	2	5	-----	-----	73	10	5	1	5	3	1	1
-----	-----	3	-----	-----	18	6	-----	1	-----	-----	-----	-----
2	2	1	1	-----	47	1	11	2	7	1	3	-----
2	1	3	1	-----	57	1	-----	3	6	4	-----	1
3	3	2	7	6	71	1	6	5	4	11	2	2
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	2	2	1	-----	44	-----	3	1	9	6	-----	-----
26	30	46	9	12	1,446	89	56	86	210	186	36	16
4	12	8	2	3	190	13	8	16	29	42	4	5
25	17	17	8	11	647	2	42	28	42	85	29	15
11	17	19	7	12	427	5	26	13	39	66	11	12
2	5	1	-----	1	146	1	11	6	9	11	3	3
29	22	37	8	12	808	14	52	32	137	118	49	22
76	48	55	15	27	1,472	19	60	47	126	198	54	30
27	25	33	16	16	674	9	30	23	69	92	24	32
7	8	11	5	4	223	6	10	10	21	40	14	4
22	13	23	-----	3	301	27	39	26	48	52	13	19
3	3	6	4	1	82	1	5	6	14	20	7	3
19	17	25	5	10	452	11	22	19	28	68	17	11
16	15	18	14	6	688	9	34	29	42	103	17	13
2	3	4	1	3	99	2	10	-----	6	13	2	5
15	23	25	2	6	857	8	18	17	38	60	21	16
8	3	9	2	4	176	4	11	9	18	27	4	3
57	26	36	19	24	665	56	50	51	88	110	28	38
9	23	17	5	12	480	10	22	22	44	65	13	9
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
8.1	30.3	12.1	7.5	11.2	6.9	45.1	18.5	15.2	8.6	11.5	2.8	-----
-----	-----	9.6	-----	22.4	0.5	-----	-----	-----	-----	-----	-----	-----
8.1	6.1	12.1	-----	-----	7.5	37.6	9.2	2.2	4.8	2.2	2.8	3.9
-----	-----	7.2	-----	-----	1.9	-----	-----	2.2	-----	-----	-----	-----
-----	6.1	2.4	7.5	-----	4.8	3.8	20.3	4.3	6.7	0.7	8.5	-----
5.4	3.0	7.2	7.5	-----	5.9	3.8	-----	6.5	5.7	2.9	-----	3.9
8.1	9.1	4.8	52.6	38.5	7.3	3.8	11.1	10.9	3.8	7.9	5.7	7.7
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5.4	6.1	4.8	7.5	-----	4.5	-----	5.5	2.2	8.6	4.3	-----	-----
70.1	90.9	110.8	67.7	67.0	149.0	146.6	103.5	183.9	200.4	133.1	102.0	61.5
10.8	26.4	19.3	15.0	16.8	19.6	48.9	14.8	34.8	27.7	30.1	11.3	19.2
67.4	51.5	41.0	60.2	61.5	66.7	7.5	77.6	60.9	40.1	60.9	82.1	57.7
29.6	51.5	45.8	52.6	67.0	44.0	18.8	48.1	28.3	37.2	47.3	31.2	41.2
5.4	15.1	2.4	-----	5.6	15.0	3.8	20.3	13.0	8.6	7.9	8.5	11.5
78.1	66.7	89.2	60.2	67.0	83.3	52.6	96.1	69.6	130.7	84.5	138.8	84.6
204.8	145.4	132.5	112.8	150.8	151.7	71.4	110.9	102.2	120.2	141.7	153.0	115.4
72.8	75.8	79.5	120.3	89.4	69.4	33.8	55.5	50.0	65.8	65.9	68.0	123.1
18.9	24.2	26.5	37.6	22.3	23.0	22.6	18.5	21.7	20.0	28.6	39.7	15.4
50.3	39.4	55.4	-----	16.8	31.0	101.5	72.1	56.5	45.8	37.2	36.8	73.1
8.1	9.1	14.5	30.1	5.6	8.4	3.8	9.2	13.0	13.3	14.3	19.8	11.5
51.2	51.5	60.2	37.6	55.9	46.6	41.3	40.7	41.3	26.7	48.7	48.2	42.3
43.1	45.4	43.4	106.3	33.5	70.9	38.8	62.9	63.0	40.1	73.7	48.2	50.0
5.4	9.1	9.6	7.5	16.8	10.2	7.5	18.5	-----	5.7	9.1	5.7	19.2
40.4	69.7	60.2	15.0	33.5	36.8	30.1	33.3	37.0	36.3	43.0	59.5	61.5
21.6	9.1	21.7	15.0	22.3	18.1	15.0	20.3	19.6	17.2	19.3	11.3	11.5
153.6	78.8	86.8	142.9	134.1	67.5	206.7	92.4	110.9	84.0	78.7	79.3	146.2
24.3	69.7	41.0	37.6	67.0	49.5	37.6	40.7	47.8	42.0	46.5	36.8	34.6

TABLE 30.—Deaths from Certain Principal Causes, with Proportion

Cause of death	The State	Northern					
		Coast counties					
		Del Norte	Humboldt	Lake	Mendocino	Napa	Sonoma
Deaths.							
ALL CAUSES	36,709	31	391	100	332	528	712
Typhoid fever	454		8	3	3	3	8
Malarial fever	101						2
Smallpox	16						
Measles	134						6
Scarlet fever	34		1			3	
Whooping-cough	193						2
Diphtheria and croup	158				1		1
Influenza	146						4
Other epidemic diseases	186		1	1	1	6	10
Tuberculosis of lungs	4,316	2	35	8	32	65	77
Tuberculosis of other organs	812	1	7	1	6	8	17
Cancer	2,306		26	6	13	28	43
Other general diseases	1,621	1	22	7	17	17	33
Meningitis	348		3		3	1	7
Other diseases of nervous system	2,959	3	24	4	41	103	71
Diseases of circulatory system	6,376	8	76	24	52	106	137
Pneumonia and broncho-pneumonia	2,968	2	29	9	25	43	60
Other diseases of respiratory system	872		6	3	4	8	15
Diarrhœa and enteritis, under 2 years	1,056		9	3	6	8	4
Diarrhœa and enteritis, 2 years and over	359	1	1	2	3	3	6
Other diseases of digestive system	1,980		16	7	21	20	37
Bright's disease and nephritis	2,185	1	13	7	32	28	37
Childbirth	363		5		4		4
Diseases of early infancy	1,369	2	15		10	4	33
Suicide	803	2	5	3	10	10	13
Other violence	2,962	6	61	9	41	21	52
All other causes	1,682	2	23	3	6	43	34
Proportion per 1,000 Total Deaths.							
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	12.4		20.5	30.0	9.0	5.7	11.2
Malarial fever	2.7						2.8
Smallpox	0.4						
Measles	3.6						8.4
Scarlet fever	0.9		2.6			5.7	
Whooping-cough	5.3						2.8
Diphtheria and croup	4.3				3.0		1.4
Influenza	4.0				3.0		5.6
Other epidemic diseases	5.1		2.5	10.0	3.0	11.4	14.0
Tuberculosis of lungs	117.6	64.5	89.5	80.0	96.4	123.1	108.1
Tuberculosis of other organs	22.1	32.3	17.9	10.0	18.1	15.2	23.9
Cancer	62.8		66.5	60.0	39.2	53.0	60.4
Other general diseases	44.2	32.3	50.3	70.0	51.2	32.2	45.4
Meningitis	8.4		7.7		9.0	1.9	9.8
Other diseases of nervous system	80.6	95.8	61.4	40.0	123.5	186.1	99.7
Diseases of circulatory system	173.7	258.0	194.4	240.0	156.6	200.8	192.4
Pneumonia and broncho-pneumonia	80.9	64.5	74.2	90.0	75.3	81.4	84.3
Other diseases of respiratory system	23.7		15.3	30.0	12.1	15.1	21.1
Diarrhœa and enteritis, under 2 years	28.8		23.0	30.0	18.1	15.1	5.6
Diarrhœa and enteritis, 2 years and over	9.8	32.3	2.5	20.0	9.0	5.7	8.4
Other diseases of digestive system	53.9		40.9	70.0	63.3	37.9	52.0
Bright's disease and nephritis	59.5	32.3	46.0	70.0	96.4	53.0	52.0
Childbirth	9.9		12.8		12.0		5.6
Diseases of early infancy	37.3	64.5	38.4		30.1	7.6	46.4
Suicide	21.9	64.5	12.8	30.0	30.1	18.9	16.9
Other violence	80.4	193.5	156.0	90.0	123.5	39.8	73.0
All other causes	45.8	64.5	58.8	30.0	18.1	81.4	47.8

per 1,000 Total Deaths, for Counties Arranged Geographically: 1912.

California

Interior counties

Trinity	Butte	Colusa	Glenn	Lassen	Modoc	Nevada	Placer	Plumas	Shasta	Sierra	Slackton	Sutter
61	406	97	68	37	32	222	214	48	182	40	167	66
1	3	1	2		3	1	3		1		3	2
	8	1				2	1		6	1	1	3
	5					1	1					
	5										1	
1	1										1	
	3	1			1			1	1	2	3	2
1	4		1				1		2			
2	40	12	7	2	1	25	21	4	17	1	8	2
	10				1	2	2	1	4	3	3	
1	18	5		2	2	14	13	3	2	4	9	7
1	26	3	10	2		7	20	1	7	1	14	4
	1	1	1		1	3	1	1	1		2	
2	22	5	3	3	2	19	14	1	12	2	6	6
15	68	15	14	9	6	50	34	7	32	11	38	7
	26	10	5	6	4	13	14	7	8	2	12	4
1	10	3				6	6	1	2	2	3	1
	13	5	2			5	2	1	2	1	4	3
2	5	1	2	1			2		3		3	1
3	17	5	3	2	3	12	7	1	10	2	10	4
6	21	4	1	1	4	7	16	4	8		3	3
	6		2		1	2	1		7		1	
1	22	5	5	2		7	4	1	7	1	6	
3	11	3	4			10	8	1	4	1	3	2
13	30	14	4	7		20	20	11	33	1	22	11
5	33	8	2		3	16	17	2	13	5	11	4
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
16.4	7.4	10.3	29.4		98.8	4.5	14.0		5.5		18.0	30.3
	19.7	10.3				9.0	4.7		33.0	25.0	6.0	45.5
	12.3					4.5	4.7					
	12.3										6.0	
	2.5										6.0	
16.4	7.4	10.3			31.3			20.9	5.5	50.0	18.0	30.3
16.4	9.9		14.7			4.7			11.0			
32.8	98.5	123.7	102.9	54.1	31.3	112.6	98.1	83.4	93.4	25.0	47.9	30.3
	24.6				31.3	9.0	9.3	20.9	22.0	75.0	18.0	
16.4	44.3	51.6		54.1	62.5	63.1	60.8	62.5	11.0	100.0	53.9	106.1
16.4	64.0	30.9	147.1	54.1		31.5	93.5	20.9	38.5	25.0	83.8	60.6
	2.5	10.3	14.7		31.2	13.5	4.7	20.8	5.5		12.0	
32.8	54.2	51.6	44.1	81.1	62.5	85.6	65.4	20.8	65.9	50.0	35.9	90.9
256.1	162.6	154.6	205.9	243.2	187.5	225.2	158.9	145.8	175.8	275.0	227.5	106.1
	64.0	103.1	73.6	162.1	125.0	58.6	65.4	145.8	43.9	50.0	71.8	60.6
16.4	24.6	30.9				27.0	28.0	20.8	11.0	50.0	18.0	15.1
	32.0	51.6	29.4			22.5	9.3	20.8	11.0	25.0	23.0	45.5
32.8	12.3	10.3	29.4	27.0			9.3		16.5		18.0	15.1
49.2	41.9	51.6	44.1	54.1	93.7	54.1	32.7	20.8	54.9	50.0	59.0	60.6
98.3	51.7	41.2	14.7	27.0	125.0	31.5	74.8	83.3	43.9		18.0	45.4
	14.8		29.4		31.2	9.0	4.7		38.5		6.0	
16.4	54.2	51.6	73.6	54.0		31.5	18.7	20.8	38.5	25.0	35.9	
49.2	27.1	30.9	58.8			45.1	37.4	20.8	22.0	25.0	18.0	30.3
213.1	73.9	144.3	58.8	189.2		90.1	121.5	229.2	181.3	25.0	131.7	166.7
81.9	81.3	30.9	29.4		93.7	72.1	79.4	41.7	71.4	125.0	66.8	60.6

TABLE 30.—Death from Certain Principal Causes, with Proportion per

Cause of death	Northern California—Cont.		San Francisco	Central			
	Interior counties—Continued			Other bay counties			
	Yuba	Yuba		Alameda	Contra Costa	Marin	San Mateo
Deaths.							
ALL CAUSES.....	146	149	6,766	3,581	331	253	905
Typhoid fever	1	—	60	34	6	5	2
Malarial fever	2	3	12	1	—	—	2
Smallpox	—	—	1	1	—	—	—
Measles	—	—	50	7	4	—	—
Scarlet fever	—	1	1	1	—	—	—
Whooping-cough	—	1	25	21	4	—	2
Diphtheria and croup	4	—	31	21	1	—	5
Influenza	2	—	8	5	1	—	—
Other epidemic diseases	2	—	22	11	1	—	1
Tuberculosis of lungs	15	11	678	364	27	31	33
Tuberculosis of other organs	6	3	174	64	7	3	10
Cancer	5	5	500	268	17	27	17
Other general diseases	7	7	335	154	9	9	15
Meningitis	1	1	52	34	3	3	3
Other diseases of nervous system	13	4	448	317	20	16	25
Diseases of circulatory system	26	27	1,384	685	54	41	65
Pneumonia and broncho-pneumonia	23	12	543	334	35	20	24
Other diseases of respiratory system	1	6	174	91	6	4	3
Diarrhœa and enteritis, under 2 years	—	4	192	95	14	4	8
Diarrhœa and enteritis, 2 years and over	1	3	37	31	3	3	1
Other diseases of digestive system	5	7	456	204	13	16	11
Bright's disease and nephritis	7	8	371	196	15	15	14
Childbirth	—	2	50	42	2	1	3
Diseases of early infancy	4	3	236	150	18	11	13
Suicide	2	3	203	91	3	5	9
Other violence	13	17	434	225	59	25	29
All other causes	6	21	289	134	9	14	9
Proportion per 1,000 Total Deaths.							
ALL CAUSES.....	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	6.9	—	8.9	9.5	18.1	19.8	6.6
Malarial fever	13.7	20.1	1.8	0.3	—	—	6.6
Smallpox	—	—	0.1	0.3	—	—	—
Measles	—	—	7.4	1.9	12.1	—	—
Scarlet fever	—	6.7	0.1	0.3	—	—	—
Whooping-cough	—	6.7	3.7	5.9	12.1	—	6.6
Diphtheria and croup	27.4	—	4.6	5.9	3.0	—	16.4
Influenza	13.7	—	1.2	1.4	3.0	—	—
Other epidemic diseases	13.7	—	3.2	3.1	3.0	—	3.3
Tuberculosis of lungs	102.7	73.8	100.2	101.6	81.6	122.5	106.2
Tuberculosis of other organs	41.1	20.1	25.7	17.9	21.2	11.9	32.8
Cancer	34.3	33.6	73.9	74.8	51.4	106.7	55.7
Other general diseases	47.9	47.0	49.5	43.0	27.2	35.6	49.2
Meningitis	6.9	6.7	7.7	9.5	9.1	11.9	9.8
Other diseases of nervous system	89.0	26.9	66.2	88.5	60.4	63.2	82.0
Diseases of circulatory system	178.1	181.2	204.6	191.3	163.1	162.0	213.1
Pneumonia and broncho-pneumonia	157.5	80.6	80.3	93.3	105.7	79.0	78.7
Other diseases of respiratory system	6.9	40.3	25.7	25.4	18.1	15.8	9.8
Diarrhœa and enteritis, under 2 years	—	26.9	28.4	26.5	42.3	15.8	26.3
Diarrhœa and enteritis, 2 years and over	6.9	20.1	5.5	8.7	9.1	11.9	6.5
Other diseases of digestive system	34.2	47.0	67.4	57.0	39.3	63.2	36.1
Bright's disease and nephritis	47.9	53.7	54.8	54.7	45.3	59.3	45.9
Childbirth	—	13.4	7.4	11.7	6.0	4.0	9.8
Diseases of early infancy	27.4	20.1	34.9	41.9	54.4	43.5	42.6
Suicide	13.7	20.1	30.0	25.4	9.1	19.8	29.5
Other violence	89.0	114.1	64.1	62.8	178.2	96.8	95.1
All other causes	41.1	140.9	42.7	37.4	27.2	55.3	29.5

1,000 Total Deaths, for Counties Arranged Geographically: 1912—Continued.

California

Coast counties					Interior counties							
Monterey	San Benito	San Luis Obispo	Santa Clara	Santa Cruz	Alpine	Amador	Calaveras	El Dorado	Fresno	Inyo	Kern	Kings
274	86	206	1,389	378	3	114	98	129	1,044	41	528	188
4	2	1	12	4		2		1	36		12	6
		1		1		2		1	5		1	5
		1	18	1				1	10		1	
			1	1				1	2		2	
1		2	6				1	1	12	2	5	1
		1	2			1			9		4	
	1	4	4	1		2	1	1	5	2	1	2
1		2	6					1	3		2	1
22	8	24	130	26	1	24	12	13	96	4	57	22
10	2	3	30	9		2	1	1	16	1	13	2
16	5	11	86	27		5	2	4	62	1	21	9
18	3	4	59	16		5	5	5	32	1	29	11
1		2	6	4					8		6	3
25	7	11	160	28		5	6	8	61	2	27	8
44	14	35	294	74	1	10	23	32	143	4	57	20
26	10	11	119	32		4	10	6	92	4	51	14
5	2	2	47	12		3	3	4	21	1	7	2
4	2	4	40	12			1	2	83		25	9
2	3	4	11	1		2	1	1	11		4	2
11	4	25	67	20		6	5	10	54	2	36	11
29	6	8	75	23	1	17	6	11	53		29	11
5		1	14	3		2	1		10	1	7	7
4	4	8	36	18			2	1	56	2	19	14
9		7	19	10		1	1	2	20	2	14	3
25	11	21	78	28		15	11	13	112	10	82	16
12	2	12	69	27		6	6	9	32	2	16	9
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
14.6	23.3	4.9	8.7	10.6		17.6		7.8	34.5		22.7	31.9
		4.9		2.6		17.6		7.8	4.8		1.9	26.6
		4.9	13.0	2.6				7.8	9.6		1.9	
			0.7	2.6				7.8	1.9		3.8	
3.7		9.8	4.3				10.2	7.7	11.5	48.8	9.5	5.3
		4.9	1.4			8.8			8.6		7.6	
	11.6	19.5	2.9	2.6		17.5	10.2	7.7	4.8	48.8	1.9	10.6
3.7		9.8	4.3					7.7	2.9		3.8	5.3
80.3	93.0	117.1	98.6	68.8	333.4	210.5	122.5	100.8	91.9	97.5	107.9	117.0
36.5	23.3	14.6	21.6	23.8		17.5	10.2	7.7	15.3	24.4	24.6	10.6
58.4	58.1	53.7	61.9	71.4		43.9	20.4	31.0	59.4	24.4	39.8	47.9
65.7	34.9	19.5	42.5	42.3		43.9	51.0	38.8	30.7	24.4	54.9	58.5
3.7		9.8	4.3	10.6					7.7		11.4	10.0
91.2	81.4	53.7	115.2	74.1		43.9	61.2	62.0	58.4	48.8	51.1	42.6
160.6	162.8	170.7	211.6	186.8	333.3	87.7	234.7	248.1	137.0	97.5	107.9	106.4
94.9	116.3	58.7	86.7	84.7		35.1	102.1	46.5	88.1	97.5	93.6	74.5
18.3	23.8	9.7	33.8	31.8		26.3	30.6	31.0	20.1	24.4	13.3	10.6
14.6	23.2	19.5	28.8	31.8			10.2	15.5	79.5		47.3	47.9
7.3	34.9	19.5	7.9	2.6		17.5	10.2	7.7	10.5		7.6	10.6
40.1	46.5	121.9	48.2	52.9		52.6	51.0	77.5	51.7	48.8	68.2	58.5
105.8	69.8	39.0	54.0	60.9	333.3	149.1	61.2	85.3	50.8		54.9	58.5
18.2		4.9	10.1	7.9		17.5	10.2		9.6	24.4	13.3	37.2
14.6	46.5	39.0	25.9	47.6			20.4	7.7	53.6	48.8	39.0	74.5
22.8		34.1	13.7	26.5		8.8	10.2	15.5	19.2	48.8	26.5	16.0
91.2	157.9	103.4	56.2	74.1		131.6	112.8	100.8	107.3	243.9	155.3	85.1
43.8	23.2	58.5	49.7	71.4		52.6	61.2	69.8	30.6	48.8	30.3	47.9

TABLE 30.—Death from Certain Principal Causes, with Proportion per

Cause of death	Central California					
	Interior counties					
	Madra	Merced	Mon	Sacramento	San Joaquin	
Deaths.						
ALL CAUSES	68	23	176	11	1,212	1,086
Typhoid fever			7		28	14
Malarial fever			3		11	4
Smallpox						
Measles					11	3
Scarlet fever			1			
Whooping-cough					2	1
Diphtheria and croup			2		5	3
Influenza			2		6	5
Other epidemic diseases			4		16	3
Tuberculosis of lungs	7	2	12		126	134
Tuberculosis of other organs			2	1	25	17
Cancer	5	1	4	1	72	57
Other general diseases	6		7	1	75	45
Meningitis	1		4		7	9
Other diseases of nervous system	7	1	7		52	118
Diseases of circulatory system	12	3	28		161	173
Pneumonia and broncho-pneumonia	7	1	11	1	112	114
Other diseases of respiratory system	1	1	6		31	20
Diarrhoea and enteritis, under 2 years	2	1	12		38	17
Diarrhoea and enteritis, 2 years and over		1	5		14	21
Other diseases of digestive system	1	6	8		75	36
Bright's disease and nephritis	6	2	5	1	50	72
Childbirth	1		3		19	10
Diseases of early infancy	1		7		34	28
Suicide	2		3	1	26	14
Other violence	8	4	19	4	135	118
All other causes	1		14	1	72	54
Proportion per 1,000 Total Deaths.						
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever			39.8		23.1	12.9
Malarial fever			17.0		9.1	3.7
Smallpox						
Measles					9.1	2.7
Scarlet fever			5.7			
Whooping-cough					1.6	0.9
Diphtheria and croup			11.4		4.1	2.7
Influenza			11.4		4.9	4.6
Other epidemic diseases			22.7		13.2	2.7
Tuberculosis of lungs	102.9	86.9	68.2		104.0	123.2
Tuberculosis of other organs			11.4	90.9	20.6	15.6
Cancer	73.5	43.5	22.7	90.9	50.4	52.4
Other general diseases	88.3		39.8	90.9	61.9	41.3
Meningitis	14.7		22.7		5.8	8.3
Other diseases of nervous system	102.9	43.5	39.8		42.9	108.5
Diseases of circulatory system	176.5	130.4	159.1		132.8	159.0
Pneumonia and broncho-pneumonia	102.9	43.5	62.5	90.9	92.4	104.9
Other diseases of respiratory system	14.7	43.5	34.1		25.6	18.4
Diarrhoea and enteritis, under 2 years	29.4	43.5	68.2		31.3	15.6
Diarrhoea and enteritis, 2 years and over		43.5	28.4		11.5	19.3
Other diseases of digestive system	14.7	290.9	45.5		61.9	33.1
Bright's disease and nephritis	88.3	86.9	28.4	90.9	48.7	66.2
Childbirth	14.7		17.0		15.7	9.2
Diseases of early infancy	14.7		39.8		28.1	23.9
Suicide	29.4		17.0	90.9	21.5	12.9
Other violence	117.7	173.9	107.9	333.7	111.4	108.5
All other causes	14.7		79.5	90.9	59.4	49.6

1,000 Total Deaths, for Counties Arranged Geographically: 1912—Concluded.

--Continued

Southern California

--Continued

Other counties

Solano	Stanislaus	Tulare	Tuolumne	Yuba	Los Angeles	Imperial	Orange	Riverside	San Bernardino	San Diego	Santa Barbara	Ventura
315	331	393	130	198	8,800	156	515	510	1,042	1,294	300	260
4	9	11	10	3	76	10	10	8	11	15	3	2
1	1	4		3	7	1	2		1	1		1
2	2	1			13		2	1		2		
1	1				13		1		2	1		
3	2	7			60	2	7	3	4	10		
1	1	3			40	2	4	3	7	5		
2	3	2	5		44	1	1	1	2	8	2	2
5	5	3	1	1	49		1	2	7	8		
29	23	40	18	9	1,344	25	48	100	178	193	46	20
3	7	11		2	233	2	7	14	29	20	10	6
16	14	23	5	19	597	3	36	23	47	68	16	15
8	9	13	6	4	374	3	27	17	34	51	18	6
4	3	9	1	3	67	1	5	7	11	14	1	8
25	27	31	11	15	736	12	35	43	142	101	41	21
65	49	55	17	33	1,428	15	63	60	155	223	53	40
24	24	37	22	10	679	13	24	33	68	94	22	23
5	13	8	5	6	209	2	18	14	18	28	11	11
13	13	11	1	4	213	9	35	26	28	37	15	9
2	4	5	2	5	83	1	7	6	15	21	5	4
12	34	18	6	16	427	2	27	24	36	65	37	7
22	14	15	3	9	631	10	33	33	63	86	11	14
1	5	7	1	2	94	1	7	4	7	13	3	1
16	14	24	1	2	336	6	23	26	38	49	18	19
5	10	6		5	173	6	3	2	19	21	5	6
35	22	29	11	28	569	22	90	39	84	96	31	32
15	18	19	7	9	391	7	24	21	35	60	12	13
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
12.7	27.2	28.0	76.9	15.6	8.5	64.1	19.4	15.7	10.6	11.6	8.3	7.7
3.2	8.0	10.2		15.5	0.8	6.4	3.9		1.0	0.8		3.8
6.3	6.0	2.5			1.5				1.0			
	3.0				0.4		3.9	2.0		1.5		
9.5	6.0	17.8			1.5		1.9		1.9	0.8		
	3.0	7.6			6.7	12.8	13.6	5.9	3.8	7.7		
	6.0	7.6	15.4	25.9	4.5	12.8	7.8	5.9	6.7	3.9		
15.9	15.1	7.6	7.7	5.2	4.9	6.4	1.9	2.0	1.9	7.0	5.5	7.7
92.1	69.5	101.8	138.5	46.6	5.5		1.9	3.9	6.7	6.2		
9.5	21.2	28.0		10.4	151.2	100.3	93.2	193.1	170.8	151.5	127.8	76.9
50.8	42.3	58.5	38.5	98.5	26.2	12.8	13.6	27.4	27.8	15.5	27.8	23.1
25.4	27.2	33.1	46.1	20.7	67.2	19.2	69.9	45.1	45.1	52.5	44.4	57.7
12.7	9.1	22.9	7.7	15.5	42.1	19.2	52.4	33.3	32.6	39.4	50.0	23.1
79.4	81.6	78.9	84.6	77.7	7.5	6.4	9.7	13.7	10.6	10.8	2.8	30.8
206.3	148.0	139.9	130.8	171.0	82.8	76.9	68.0	84.3	136.3	78.1	113.9	81.8
76.2	72.5	94.1	169.2	51.8	100.6	96.2	122.3	117.6	148.7	172.3	147.2	153.8
15.9	39.3	20.4	38.5	31.1	76.4	83.4	46.6	64.7	65.3	72.6	61.1	88.5
41.3	54.4	28.0	7.7	20.7	23.5	12.8	35.0	27.4	17.3	21.6	30.6	42.3
6.3	12.1	12.7	15.4	25.9	24.0	57.7	68.0	51.0	26.9	28.6	41.7	34.6
38.1	102.7	45.8	46.1	82.9	9.3	6.4	13.6	11.8	14.4	16.2	13.9	15.4
69.8	42.3	38.2	23.1	46.6	48.0	12.8	52.4	47.1	34.5	50.2	102.8	26.9
3.2	15.1	17.8	7.7	10.4	71.0	64.1	64.1	64.7	60.5	60.5	30.6	53.8
50.8	42.3	61.1	7.7	10.4	10.6	6.4	13.6	7.8	6.7	10.0	8.3	3.8
15.9	30.2	15.3		25.9	37.8	38.5	54.4	51.0	36.5	37.9	50.0	73.1
111.1	66.5	73.8	84.6	145.1	19.5	38.5	5.8	3.9	18.2	16.2	13.9	23.1
47.6	54.4	48.4	58.8	46.6	141.0	141.0	116.5	76.5	80.6	74.2	86.1	123.1
					44.0	44.9	46.6	41.2	33.6	46.4	33.3	50.0

TABLE 31.—Deaths from Certain Principal Causes, with Proportion per 1,000

Cause of death	Northern California					
	San Francisco (thirty cities)	Eureka	Napa	Petaluma	Santa Rosa	Grass Valley
Deaths.						
ALL CAUSES	23,519	256	117	85	146	71
Typhoid fever	202	5	3		3	1
Malarial fever	24			1	1	
Smallpox	5					
Measles	78					
Scarlet fever	39					
Whooping-cough	71		1		1	
Diphtheria and croup	128			1	2	1
Influenza	103	1			2	
Other epidemic diseases	106	2		1	2	
Tuberculosis of lungs	2,663	19	13	4	10	7
Tuberculosis of other organs	575	6	4	2	3	1
Cancer	1,772	24	6	8	7	3
Other general diseases	1,114	13	5	4	6	4
Meningitis	269	4	1	2	1	1
Other diseases of nervous system	1,956	25	11	5	14	11
Diseases of circulatory system	4,081	46	25	10	30	14
Pneumonia and broncho-pneumonia	1,832	12	10	12	8	2
Other diseases of respiratory system	488	6	3	4	1	2
Diarrhœa and enteritis, under 2 years	670	4	1		2	2
Diarrhœa and enteritis, 2 years and over	191	4	2	1	1	1
Other diseases of digestive system	1,307	11	11	8	12	3
Bright's disease and nephritis	1,510	10	7	4	8	2
Childbirth	253	3	2		1	3
Diseases of early infancy	856	6	2	3	8	5
Suicide	548	9	1	2	3	1
Other violence	1,598	31	5	5	15	4
All other causes	1,020	15	4	8	5	3
Proportion per 1,000 Total Deaths.						
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	11.1	19.5	25.6		20.5	14.1
Malarial fever	1.0			11.8	6.9	
Smallpox	0.2					
Measles	3.3					
Scarlet fever	1.7					
Whooping-cough	3.0		8.6		6.9	
Diphtheria and croup	5.4			11.8	13.7	14.1
Influenza	4.4	3.9			13.7	
Other epidemic diseases	4.5	7.8		11.8	13.7	
Tuberculosis of lungs	113.2	74.2	111.1	47.1	68.5	98.6
Tuberculosis of other organs	24.5	23.4	34.2	23.5	20.5	14.1
Cancer	75.3	93.8	51.3	94.1	47.9	42.3
Other general diseases	47.4	50.8	42.7	47.1	41.1	56.3
Meningitis	11.4	15.6	8.6	23.5	6.9	14.1
Other diseases of nervous system	83.2	97.7	94.0	58.8	95.9	154.9
Diseases of circulatory system	173.5	179.7	213.7	117.6	205.5	197.2
Pneumonia and broncho-pneumonia	77.9	46.9	85.5	141.2	54.8	28.2
Other diseases of respiratory system	20.8	23.4	25.6	47.1	6.9	28.2
Diarrhœa and enteritis, under 2 years	28.5	15.6	8.6		13.7	28.2
Diarrhœa and enteritis, 2 years and over	8.1	15.6	17.1	11.8	6.9	14.1
Other diseases of digestive system	55.6	43.0	94.0	94.1	82.2	42.2
Bright's disease and nephritis	64.2	39.1	59.8	47.0	54.8	28.2
Childbirth	10.8	11.7	17.1		6.8	42.2
Diseases of early infancy	36.4	23.4	17.1	35.3	54.8	70.4
Suicide	23.3	35.2	8.5	23.5	20.5	14.1
Other violence	67.9	121.1	42.7	53.8	102.7	56.3
All other causes	43.4	58.6	34.2	94.1	34.2	42.2

Total Deaths, for Freeholders' Charter Cities Arranged Geographically: 1913.

Central California

San Francisco	Alameda	Berkeley	Oakland	Richmond	San Rafael	Monterey	Salinas	San Luis Obispo	Palo Alto	San Jose
7,002	290	456	2,197	159	92	67	74	101	31	452
71	1	4	22	5			2	1		6
6			2	1						
8		4						1		
16	1		2							
17			3			1				3
29		1	24	1	1					
11	2	1	8			1	1			3
25	3	1	4			1		1		1
685	25	20	177	8	13	6	4	13	1	42
196	7	8	51	3		3	3	3	1	17
573	28	42	198	3	10	6	4	9	3	37
355	18	23	88	5	6	3	7	6	1	14
56	2	1	16	2		1				3
484	31	45	198	10	7	10	7	8	5	38
1,443	50	112	405	24	20	8	15	24	6	96
509	22	34	218	18	3	2	5	6	2	38
153	4	5	39	1	1		4		3	12
143	10	12	63	8	5	3	3	3	1	13
46	1	1	20			2	1			3
436	19	20	118	7	6	3	1	7	1	17
426	22	28	149	10	5	7	7	3	5	33
74	2	3	26	2	1		1	1		9
196	6	20	87	14	4		4	3	1	15
220	9	12	57	7	1	1		2		11
454	21	26	123	29	6	7	4	7	1	22
282	6	24	94	1	3	2	1	3		19
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
10.1	3.5	8.8	10.0	31.5			27.0	9.9		13.3
0.9			0.9	6.3						
1.1		8.8						9.9		
2.3	3.4		6.9							
2.4			1.4			14.9				6.6
4.1		2.2	10.9	6.3	10.9					
1.6	6.9	2.2	3.6			14.9	13.5			6.6
3.6	10.3	2.2	1.8			14.9		9.9		2.2
97.8	86.2	63.6	80.6	50.3	141.3	89.6	54.1	128.7	32.3	92.9
27.9	24.1	17.5	23.2	18.9		44.8	40.5	29.7	32.3	37.6
81.8	96.6	92.1	90.1	18.9	108.7	89.6	54.1	89.1	96.8	81.9
50.7	62.1	50.4	40.1	31.4	65.2	44.8	94.6	50.4	32.3	31.0
8.0	6.9	2.2	7.3	12.6		14.9				6.6
60.1	106.9	98.7	90.1	62.9	76.1	149.2	94.6	79.2	161.3	84.1
206.1	172.4	245.6	184.3	150.9	217.4	110.4	202.7	237.7	193.5	212.4
85.6	75.9	74.6	99.2	113.2	32.6	29.9	67.6	59.4	64.5	84.1
21.9	13.8	11.0	17.8	6.3	10.9		54.1		96.8	26.6
20.4	34.5	26.3	28.7	50.3	54.3	44.8	40.5	29.7	32.3	28.8
6.6	3.4	2.2	9.1			29.8	13.5			6.6
62.3	65.5	43.8	53.7	44.0	65.2	44.8	13.5	69.3	32.2	37.6
60.8	75.9	61.4	67.8	62.9	54.3	104.5	94.6	29.7	161.3	73.0
10.6	6.9	6.6	11.8	12.6	10.9		13.5	9.9		19.9
27.8	20.7	43.9	39.6	88.0	43.5		54.1	29.7	32.2	33.2
31.4	31.0	26.3	26.0	44.0	10.9	14.9		19.8		24.3
64.8	72.4	57.0	58.3	182.4	65.2	104.5	54.0	69.3	32.2	48.7
40.3	20.7	52.6	42.8	6.3	32.6	29.8	13.5	29.7		42.0

TABLE 31.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total

Cause of death	Central California—				
	Santa Cruz	Watsonville	Fresno	Sacramento	Stockton
Deaths.					
ALL CAUSES	174	90	420	1,108	400
Typhoid fever		1	7	34	5
Malarial fever				9	
Smallpox					1
Measles	2		3	1	
Scarlet fever			3	5	
Whooping-cough		1		3	3
Diphtheria and croup			6	6	2
Influenza	2		2	4	
Other epidemic diseases			3	6	5
Tuberculosis of lungs	22	10	32	135	62
Tuberculosis of other organs	3	3	11	29	13
Cancer	18	2	28	74	18
Other general diseases	3	4	17	70	12
Meningitis	2	1	5	16	9
Other diseases of nervous system	21	8	31	74	80
Diseases of circulatory system	44	13	59	142	52
Pneumonia and broncho-pneumonia	11	6	30	93	22
Other diseases of respiratory system	3	5	5	18	11
Diarrhœa and enteritis, under 2 years	2	5	41	49	5
Diarrhœa and enteritis, 2 years and over	3	3	2	5	6
Other diseases of digestive system	5	6	39	68	25
Bright's disease and nephritis	12	8	14	64	35
Childbirth		3	8	16	1
Diseases of early infancy	5	3	30	48	13
Suicide	2	1	5	16	9
Other violence	7	5	25	82	30
All other causes	7	2	14	41	32
Proportion per 1,000 Total Deaths.					
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever		11.1	16.7	30.7	10.9
Malarial fever				8.1	
Smallpox					2.2
Measles	11.5		7.1	0.9	
Scarlet fever			7.1	4.5	
Whooping-cough		11.1		2.7	6.5
Diphtheria and croup			14.3	5.4	4.3
Influenza	11.5		4.8	3.6	
Other epidemic diseases			7.1	5.4	10.9
Tuberculosis of lungs	126.4	111.1	76.2	121.8	134.8
Tuberculosis of other organs	17.3	33.3	26.2	26.2	28.3
Cancer	103.4	22.2	66.7	66.8	39.1
Other general diseases	17.3	44.5	40.5	63.2	26.1
Meningitis	11.5	11.1	11.9	14.5	17.4
Other diseases of nervous system	120.7	88.9	73.8	66.8	173.9
Diseases of circulatory system	252.9	144.4	140.5	128.2	113.0
Pneumonia and broncho-pneumonia	63.2	66.7	71.4	83.9	69.6
Other diseases of respiratory system	17.3	55.6	11.9	16.3	23.9
Diarrhœa and enteritis, under 2 years	11.5	55.6	97.6	44.2	10.9
Diarrhœa and enteritis, 2 years and over	17.2	33.3	4.8	4.5	13.0
Other diseases of digestive system	28.7	66.7	92.9	61.4	54.3
Bright's disease and nephritis	69.0	88.9	33.3	57.8	76.1
Childbirth		33.3	19.1	14.4	2.2
Diseases of early infancy	28.7	33.3	71.4	43.3	28.2
Suicide	11.5	11.1	11.9	14.4	19.6
Other violence	40.2	55.6	59.5	74.0	65.2
All other causes	40.2	22.2	33.3	37.0	69.6

Deaths, for Freeholders' Charter Cities Arranged Geographically: 1913—Concluded.

Continued		Southern California									
Vallejo.....	Modesto.....	Los Angeles.....	Long Beach.....	Pasadena.....	Pomona.....	Santa Monica.....	Riverside.....	San Bernardino.....	San Diego.....	Santa Barbara.....	
170	165	6,198	482	470	155	176	231	323	1,073	228	
2	4	52	4	2	2	1	4	5	14	1	
		1	1	1	1						
1	1	56		1					3	1	
		12									
	1	31	1		1		1	1	1	1	
		43	2	1			3	1	4		
1	2	34	4	4	2	1	4	8	9	1	
2	1	29	4	2	2	1	1	4	5		
13	11	930	24	58	20	11	33	79	141	26	
1	5	131	5	7	1	3	9	12	33	2	
14	10	415	42	50	10	10	16	17	69	18	
6	8	294	26	19	6	7	10	13	53	8	
2	2	120	2	4	1	2	4	2	6	2	
13	15	492	57	56	16	16	20	19	93	36	
30	27	922	67	85	28	36	31	38	148	31	
13	15	449	19	36	10	16	11	16	71	13	
5	4	116	11	11	6	2	5	5	33	10	
8	1	188	11	2	2	3	13	22	38	7	
2	2	44	1	8	2	2	4	5	14	5	
7	5	318	26	22	6	13	12	12	49	11	
5	9	431	48	35	15	1	13	6	77	11	
1	8	66	6	4	3	1		1	10	2	
6	9	234	23	11	8	8	7	13	53	12	
6	2	117	5	9	3	5	3	4	21	4	
29	16	389	63	20	5	25	14	29	79	15	
3	12	284	30	22	5	12	13	16	40	8	
<hr/>											
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	
11.8	24.2	8.4	8.3	4.3	12.9	5.7	17.3	15.5	13.0	4.4	
		0.2	2.1	2.1	6.5						
5.9	6.1	9.0		2.1					2.8	4.4	
		1.9									
	6.1	5.0	2.1		6.5		4.3	3.1	0.9	4.4	
		6.9	4.2	2.1			13.0	3.1	3.7		
5.9	12.1	5.5	8.3	8.5	12.9	5.7	17.3	9.3	8.4	4.4	
11.8	6.1	4.7	8.3	4.3	12.9	5.7	4.3	12.4	4.7		
73.5	66.7	150.0	49.8	123.4	129.0	62.5	142.9	244.6	131.4	114.0	
5.9	30.3	21.1	10.4	14.9	6.4	17.0	39.0	37.2	30.8	8.8	
82.3	60.6	67.0	87.1	106.4	64.5	56.8	69.3	52.6	64.3	78.9	
35.3	48.6	47.4	53.9	40.4	38.7	39.8	43.3	40.2	49.4	35.1	
11.7	12.1	19.4	4.2	8.5	6.4	11.4	17.3	6.2	5.6	8.8	
76.5	90.9	79.4	118.2	119.1	103.2	90.9	86.6	58.8	86.7	157.9	
176.5	163.6	148.8	139.0	180.8	180.6	204.5	134.2	117.6	137.9	136.0	
76.5	90.9	72.4	39.4	76.6	64.5	90.9	47.6	49.5	66.2	57.0	
29.4	24.2	18.7	22.8	23.4	38.7	11.4	21.6	15.5	30.7	43.9	
47.0	6.1	30.3	22.8	4.3	12.9	17.0	56.3	68.1	35.4	30.7	
11.7	12.1	7.1	2.1	17.0	12.9	11.4	17.3	15.5	13.0	21.9	
41.2	30.3	51.3	53.9	46.8	38.7	73.9	51.9	37.2	45.7	61.4	
29.4	54.6	69.5	99.6	74.5	93.8	5.7	56.3	18.6	71.8	48.2	
5.9	18.2	10.7	12.5	8.5	19.4	5.7		3.1	9.3	8.8	
35.3	54.5	37.8	47.7	23.4	51.6	45.4	30.3	40.2	49.4	52.6	
35.3	12.1	18.9	10.4	19.2	19.4	28.4	13.0	12.4	19.6	17.5	
170.6	97.0	62.8	130.7	42.6	32.3	142.0	60.6	89.8	73.6	65.8	
17.6	72.7	45.8	62.2	46.8	32.3	68.2	56.3	49.5	45.7	35.1	

TABLE 32.—Deaths from Certain Principal Causes, with Proportion per 1,000

Cause of death	31 Presbyterians' charter cities	Northern			
		Eureka	Napa	Petaluma	Santa Rosa
Deaths.					
ALL CAUSES	22,822	217	92	90	140
Typhoid fever	242	2	2		1
Malarial fever	30				
Smallpox	14				
Measles	88				1
Scarlet fever	13	1	1		
Whooping-cough	117			1	
Diphtheria and croup	98				1
Influenza	61				
Other epidemic diseases	93	1		1	1
Tuberculosis of lungs	2,554	26	12	10	10
Tuberculosis of other organs	544	6	1		2
Cancer	1,590	15	4	11	11
Other general diseases	1,008	14	4	1	8
Meningitis	192	1	1	1	1
Other diseases of nervous system	1,715	12	5	6	8
Diseases of circulatory system	4,000	43	16	19	39
Pneumonia and broncho-pneumonia	1,819	17	8	3	12
Other diseases of respiratory system	539	4	4	1	3
Diarrhoea and enteritis, under 2 years	568	4	5		3
Diarrhoea and enteritis, 2 years and over	199	1	1	2	2
Other diseases of digestive system	1,332	7	8	5	5
Bright's disease and nephritis	1,329	12	4	5	7
Childbirth	228	3			2
Diseases of early infancy	858	8	1	7	9
Suicide	543	4	6	2	3
Other violence	1,537	22	6	6	8
All other causes	991	14	3	9	3
Proportion per 1,000 Total Deaths.					
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	10.8	9.2	21.7		7.2
Malarial fever	1.4				
Smallpox	0.6				
Measles	3.9				7.1
Scarlet fever	0.6	4.6	10.9		
Whooping-cough	5.2			11.1	
Diphtheria and croup	4.4				7.1
Influenza	2.7				
Other epidemic diseases	4.2	4.6		11.1	7.1
Tuberculosis of lungs	114.4	119.8	130.4	111.1	71.4
Tuberculosis of other organs	24.4	27.7	10.9		14.3
Cancer	71.2	69.1	43.5	122.2	78.6
Other general diseases	45.2	64.5	43.5	11.1	57.2
Meningitis	8.6	4.6	10.9	11.1	7.1
Other diseases of nervous system	76.8	55.3	54.3	66.7	57.2
Diseases of circulatory system	179.2	198.2	173.9	211.1	278.6
Pneumonia and broncho-pneumonia	81.5	78.4	87.0	33.3	85.7
Other diseases of respiratory system	24.2	18.4	43.5	11.1	21.4
Diarrhoea and enteritis, under 2 years	26.4	18.4	54.3		21.4
Diarrhoea and enteritis, 2 years and over	8.9	4.6	10.9	22.2	14.3
Other diseases of digestive system	59.7	32.3	86.9	55.6	35.7
Bright's disease and nephritis	59.5	55.3	43.5	55.6	50.0
Childbirth	10.2	13.8			14.3
Diseases of early infancy	38.4	36.9	10.9	77.8	64.3
Suicide	21.3	18.4	65.2	22.2	21.4
Other violence	68.9	101.4	65.2	66.7	57.2
All other causes	44.4	64.5	32.6	100.0	21.4

Total Deaths, for Freeholders' Charter Cities Arranged Geographically: 1912.

California		Central California								
Grass Valley	San Francisco	Alameda	Berkeley	Oakland	Richmond	Monterey	Salinas	San Luis Obispo	Palo Alto	San Jose
62	6,766	325	439	2,139	135	66	57	108	43	472
60	3	6	22	1	1	2				3
12			1	5	3					
1		1								
50		1	1	19	1			1	1	1
1			4	14	1					
25				2				1		
31		3		9		1				1
8				8		4	2	15	2	46
22				41	8	5	2	2		15
10	678	22	33	191	8	7		6	5	34
1	174	3	9	41	8	4	5	2	4	14
5	500	28	34	164	8	7		1	1	3
1	335	15	25	73	1	4	5	2	2	44
1	52	2	2	27			1	1		106
4	446	25	38	185	4	7	9	5	3	44
15	1,384	75	89	408	16	13	1	21	10	44
5	543	26	39	196	20	7	6	5	2	21
2	174	5	4	60	2		1	2		13
1	192	8	11	54	5			2	1	3
37	3	3	7	15			1	3	1	19
3	456	24	26	135	8	2	2	16	1	30
2	371	24	22	114	6	4	8	1	7	3
1	50	6	6	24	2	2	2	1		15
2	233	6	17	110	10	1		4	2	7
3	203	10	10	57	8	2	4	3		25
2	434	25	37	129	29	3	9	9	2	17
4	239	12	17	84	4	4	2	8	2	
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
8.9	9.2	13.7	10.3	7.4	35.1					6.4
1.8			0.5							
0.1		2.3								
7.4		2.3	2.3	22.2						16.9
0.1										
3.7		2.3	8.9	7.4				9.3	23.3	2.1
4.6		9.1	6.6	7.4						
1.2	9.2		0.9					9.3		
3.2			4.2		15.1					2.1
161.3	100.2	67.7	75.2	89.3	59.3	60.6	35.1	138.9	46.5	97.5
16.1	25.7	9.2	20.5	19.2	22.2	75.8	35.1	18.5		31.8
80.7	73.9	86.2	77.4	76.7	59.3	106.1		55.5	116.3	72.0
16.1	49.5	46.2	56.9	34.1	7.4	60.6	87.7	18.5	93.0	29.7
16.1	7.7	6.2	4.6	12.6			17.5	9.3		6.4
64.5	66.2	78.9	86.6	83.5	29.6	106.1	157.9	46.3	69.8	93.2
241.9	204.6	230.8	202.7	190.6	118.5	197.0	17.5	194.4	232.6	224.6
80.6	80.3	60.0	88.8	91.6	148.1	106.1	105.3	46.3	46.5	93.2
32.3	25.7	15.4	9.1	28.1	14.8		17.5	18.5		44.5
16.1	28.4	24.6	25.1	25.3	37.1			18.5	23.3	27.5
	5.5	9.2	15.9	7.0			17.5	27.8	23.2	6.4
48.4	67.4	73.8	59.2	63.1	59.3	30.3	35.1	148.1	23.2	40.2
32.3	54.8	73.8	50.1	53.3	44.5	60.6	140.4	9.3	162.8	63.6
16.1	7.4	18.5	13.7	11.2	14.8	30.3	35.1	9.3		6.3
32.3	34.9	18.5	38.7	51.4	74.1	15.1		37.0	46.5	31.8
48.4	30.0	30.8	22.8	26.7	22.2	30.3	70.2	27.8		14.8
32.3	64.1	76.9	84.3	60.3	214.8	45.4	157.9	83.3	46.5	53.0
64.5	42.7	36.9	38.7	39.3	29.6	60.6	35.1	74.1	46.5	36.0

TABLE 32.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total

Cause of death	Central				
	Santa Cruz	Watsonville	Fresno	Maricopa	Stockton
Deaths.					
ALL CAUSES	182	98	383	1,082	565
Typhoid fever	1	2	13	27	4
Malarial fever	1		1	8	1
Smallpox					
Measles		1	3	9	2
Scarlet fever		1			
Whooping-cough			5	2	1
Diphtheria and croup			3	5	3
Influenza	1		1	6	2
Other epidemic diseases			1	12	
Tuberculosis of lungs	7	8	27	106	83
Tuberculosis of other organs	3	4	7	24	12
Cancer	15	4	35	68	28
Other general diseases	11	3	10	64	18
Meningitis	1		4	6	6
Other diseases of nervous system	18	4	18	44	85
Diseases of circulatory system	47	12	45	145	86
Pneumonia and broncho-pneumonia	10	13	36	95	38
Other diseases of respiratory system	4	1	7	29	10
Diarrhoea and enteritis, under 2 years	3	6	34	31	8
Diarrhoea and enteritis, 2 years and over	1		3	12	16
Other diseases of digestive system	12	2	31	66	20
Bright's disease and nephritis	12	8	21	50	27
Childbirth	1	1	3	17	4
Diseases of early infancy	6	5	24	31	12
Suicide	8	1	6	17	10
Other violence	11	10	32	93	55
All other causes	9	7	13	65	35
Proportion per 1,000 Total Deaths.					
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	5.5	21.5	34.0	26.2	6.8
Malarial fever	5.5		2.6	7.8	1.7
Smallpox					
Measles		10.8	7.8	8.7	3.4
Scarlet fever		10.8			
Whooping-cough			13.1	1.9	1.7
Diphtheria and croup			7.8	4.8	5.1
Influenza	5.5		2.6	5.8	3.4
Other epidemic diseases			2.6	11.6	
Tuberculosis of lungs	38.5	86.0	70.5	102.8	141.6
Tuberculosis of other organs	16.5	43.0	18.3	23.3	20.5
Cancer	82.4	43.0	91.4	65.9	47.8
Other general diseases	60.4	32.3	26.1	62.0	30.7
Meningitis	5.5		10.4	5.8	10.2
Other diseases of nervous system	98.9	43.0	47.0	42.6	145.0
Diseases of circulatory system	258.2	129.0	117.5	140.5	146.8
Pneumonia and broncho-pneumonia	54.9	139.8	94.0	92.0	99.0
Other diseases of respiratory system	22.0	10.8	18.3	28.1	17.1
Diarrhoea and enteritis, under 2 years	16.5	64.5	88.8	30.0	13.7
Diarrhoea and enteritis, 2 years old and over	5.5		7.8	11.6	27.3
Other diseases of digestive system	65.9	21.5	80.9	64.0	34.1
Bright's disease and nephritis	65.9	86.0	54.8	48.5	46.1
Childbirth	5.5	10.7	7.8	16.5	6.8
Diseases of early infancy	33.0	53.8	62.7	30.0	20.5
Suicide	44.0	10.7	15.7	16.5	17.1
Other violence	60.4	107.5	83.6	90.1	98.9
All other causes	49.5	75.3	33.9	63.0	59.7

Deaths, for Freeholders' Charter Cities Arranged Geographically: 1912—Concluded.

California			Southern California							
Vallejo	Modesto	Los Angeles	Long Beach	Pasadena	Pomona	Santa Monica	Riverside	San Bernardino	San Diego	Santa Barbara
186	127	5,665	324	534	152	168	270	298	987	234
	1	59	4	2	2	1	5	3	13	3
		5							1	
		10		2						
		4							1	
		8							1	
	1	41	2	7				1	7	
		25		4	1		1	2	3	
		20	1	3	2	1		1	8	1
		25	4	1		2		1	7	
1	8	813	25	91	16	10	45	58	142	33
13	8	166	4	14	3	1	8	6	16	6
1	5	414	26	31	13	9	15	13	59	12
7	9	270	9	22	4	10	13	14	39	10
2	3	45	2	5	1		5	7	11	1
2	3	453	31	58	12	16	22	23	82	25
11	10	848	74	90	27	36	37	44	164	40
29	21	441	24	39	17	12	17	19	72	13
9	11	130	4	16	3	5	9	4	19	6
3	6	115	8	4	5	3	12	10	30	9
5	6	52	1	5	1	2	2	4	18	3
1	2	304	21	31	8	6	12	9	48	25
6	14	371	30	38	7	15	18	19	62	10
18	6	72	2	7		1	2	1	10	2
1	2	226	8	14	14	11	11	12	40	7
7	2	135	2	10		5	2	10	17	2
1		361	27	23	5	13	21	25	73	20
15	7	252	15	17	11	9	13	12	44	6
4	7									
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
	7.9	10.4	12.3	3.7	13.2	6.0	18.5	10.1	13.2	12.8
		0.9							1.0	
		1.8		3.7						
		0.7							1.0	
		1.4							1.0	
	7.9	7.2	6.2	13.1				3.4	7.1	
		4.4		7.5	6.6		3.7	6.7	3.0	
		3.5	8.1	5.6	13.2	5.9		3.3	8.1	4.3
7.4	23.6	4.4	12.3	1.9		11.9		3.3	7.1	
95.6	63.0	143.5	77.2	170.4	105.3	59.5	166.7	194.6	143.9	141.0
7.4	39.4	29.3	12.3	26.2	19.7	5.9	29.6	20.1	16.2	25.7
51.5	70.9	73.1	80.2	58.1	85.5	53.6	55.6	43.6	50.8	51.3
14.7	23.6	47.7	27.8	41.2	26.3	59.5	48.2	47.0	39.5	42.7
14.7	23.6	7.9	0.2	9.4	6.6		18.5	23.5	11.1	4.3
80.9	78.7	80.0	95.7	108.6	79.0	95.2	81.5	77.2	83.1	106.8
213.2	165.4	149.7	228.4	168.5	177.6	214.3	137.0	147.6	166.2	170.9
61.2	86.6	77.8	74.1	73.0	111.8	71.4	63.0	63.8	73.0	55.6
22.1	47.2	23.0	12.3	30.0	19.7	29.8	33.3	13.4	19.3	25.6
36.8	47.2	30.3	24.7	7.5	32.9	17.9	44.4	33.6	30.4	38.5
7.3	15.8	9.2	3.1	9.4	6.6	11.9	7.4	13.4	18.2	12.8
44.1	110.2	53.7	64.8	58.1	52.6	35.7	44.4	30.2	48.6	106.8
132.3	47.2	65.5	92.6	71.2	46.0	89.3	66.7	63.8	62.8	42.7
7.3	15.8	12.7	6.2	13.1		5.9	7.4	3.3	10.1	8.6
51.5	15.8	39.9	24.7	26.2	92.1	65.5	40.7	40.3	40.5	29.9
7.3		23.8	0.2	18.7		29.8	7.4	33.6	17.2	8.6
110.3	55.1	63.7	83.3	43.1	32.9	77.4	77.8	83.9	74.0	85.5
29.4	55.1	44.5	46.3	31.8	72.4	53.6	48.2	40.3	44.6	25.6

TABLE 33.—Deaths of Males and Females 15 Years and Over from

Occupation (Showing annually at least 50 deaths)	Deaths: 1913								
	All causes	Typhoid fever	Other epidemic diseases	Tuberculosis	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of all active system
15 YEARS AND OVER	31,584	377	441	4,850	2,544	3,309	6,208	2,740	1,983
Males	19,946	260	235	3,299	1,229	1,988	3,887	1,603	1,215
All occupations	17,045	244	187	2,986	1,051	1,609	3,262	1,453	1,038
Professional	961	14	11	157	63	97	207	76	54
Architects, artists and teachers of art	51	-----	-----	13	2	4	9	3	2
Clergymen	148	1	3	26	10	11	34	16	10
Engineers and surveyors	224	8	2	47	15	18	29	16	11
Lawyers	144	3	1	11	10	25	34	10	7
Musicians and teachers of music	64	-----	1	13	4	4	16	5	1
Physicians and surgeons	155	1	1	19	6	15	46	16	10
Teachers (school)	58	-----	1	12	5	9	15	1	3
Others of this class	117	1	2	16	11	11	24	9	10
Clerical and official	1,334	11	5	291	83	141	232	99	85
Bookkeepers, clerks and copyists	648	6	3	191	33	63	92	52	38
Bankers, brokers and officials of companies	230	3	1	30	21	25	53	10	29
Collectors, auctioneers, agents	329	2	-----	62	22	36	59	28	17
Others of this class	127	-----	1	18	7	17	25	9	10
Mercantile and trading	1,802	19	10	183	95	150	318	99	83
Apothecaries, pharmacists, etc.	66	-----	2	12	5	9	15	5	2
Commercial travelers	60	-----	-----	13	4	5	11	3	3
Merchants and dealers	803	11	9	71	69	107	206	59	55
Hucksters and peddlers	50	-----	-----	12	1	1	11	4	-----
Others of this class	322	6	1	75	16	28	73	23	23
Public entertainment	407	7	2	76	39	36	55	33	34
Hotel and boardinghouse keepers	109	2	-----	19	14	7	18	8	8
Saloon keepers, liquor dealers, bartenders and restaurant keepers	298	5	2	57	25	29	37	25	26
Personal service, police and military	509	7	8	88	32	58	109	53	33
Barbers and hairdressers	122	3	1	28	7	8	16	7	8
Janitors and sextons	73	1	2	9	3	7	19	9	1
Policemen, watchmen and detectives	124	1	1	10	10	20	27	13	3
Soldiers, sailors and marines (U. S.)	140	1	2	17	8	11	30	18	11
Others of this class	110	1	2	24	4	12	17	6	10
Laboring and servant	3,597	66	36	822	175	243	564	347	207
Laborers (not agricultural)	3,179	63	34	708	152	222	479	315	179
Servants	418	3	2	114	23	21	85	32	28
Manufacturing and mechanical industry	3,483	34	31	592	205	368	732	268	210
Bakers	92	1	1	19	5	8	16	4	5
Blacksmiths	194	4	4	29	15	25	44	10	9
Boot and shoe makers	105	-----	1	11	10	12	27	6	4
Butchers	130	1	2	29	3	13	24	12	9
Cabinetmakers and upholsterers	63	-----	2	8	2	5	15	10	6
Carpenters	652	7	6	88	49	65	151	40	42
Compositors, printers and pressmen	109	-----	2	20	7	16	18	7	9
Engineers and firemen (not locomotive)	208	3	-----	32	10	27	35	14	18
Iron and steel workers	140	2	-----	31	7	13	17	14	10
Machinists	196	-----	-----	36	15	12	32	23	14
Masons (brick and stone)	85	1	1	13	8	8	20	7	2
Painters, glaziers, varnishers	273	3	3	51	10	31	51	23	14
Plumbers, gas and steam fitters	82	-----	-----	25	-----	7	13	4	5
Tailors	128	-----	1	33	5	15	31	7	5
Others of this class	1,029	12	8	157	59	111	238	87	58

Selected Causes, Classified by Occupation, with Per Cents, for California: 1913.

Per cent															
Height's disease and nephritis.	Muricide.	Other violence.	All other causes.	Typhoid fever.	Other epidemic diseases.	Tuberculosis.	Cancer.	Disease of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Bright's disease and nephritis.	Muricide.	Other violence.	All other causes.
2,326	837	2,702	3,258	1.2	1.4	15.4	8.0	10.5	19.6	8.7	6.3	7.4	2.6	8.6	10.3
1,499	682	2,286	1,717	1.3	1.2	16.6	6.2	9.7	19.4	8.5	6.1	7.5	3.4	11.5	8.6
1,247	580	1,993	1,445	1.4	1.1	17.2	6.2	9.5	19.1	8.5	6.1	7.3	3.4	11.7	8.5
88	28	78	88	1.5	1.1	16.3	6.6	10.1	21.5	7.9	5.6	9.2	2.9	8.1	9.2
7	2	4	5	-----	-----	25.5	3.9	7.9	17.7	5.9	3.9	13.7	3.9	7.8	9.8
14	-----	6	17	0.7	2.0	17.6	6.8	7.4	23.0	10.8	6.7	9.5	-----	4.0	11.5
10	8	42	18	3.6	0.9	21.0	6.7	8.0	12.9	7.1	4.9	4.5	3.6	18.8	8.0
17	7	4	15	2.1	0.7	7.6	6.9	17.4	23.6	6.9	4.9	11.8	4.9	2.8	10.4
6	3	4	7	-----	1.6	20.3	6.3	6.2	25.0	7.8	1.6	9.4	4.7	6.2	10.9
20	2	7	12	0.6	0.6	12.3	3.9	9.7	29.7	10.8	6.5	12.9	1.3	4.5	7.7
6	-----	2	4	-----	1.7	20.7	8.6	15.5	25.9	1.7	5.2	10.3	-----	3.5	6.9
8	6	9	10	0.9	1.7	13.7	9.4	9.4	20.5	7.7	8.6	6.8	5.1	7.7	8.5
112	57	99	119	0.8	0.4	21.8	6.2	10.6	17.4	7.4	6.4	8.4	4.3	7.4	8.9
40	30	39	61	0.9	0.5	29.5	5.1	9.7	14.2	8.0	5.9	6.2	4.6	6.0	9.4
25	8	19	22	1.3	0.4	8.7	9.1	10.9	24.3	4.8	8.7	10.9	3.5	8.3	9.6
33	15	28	27	0.6	-----	18.9	6.7	10.9	17.9	8.5	5.2	10.0	4.6	8.5	8.2
14	4	13	9	-----	0.8	14.2	5.5	13.4	19.7	7.1	7.9	11.0	3.1	10.2	7.1
101	46	88	110	1.5	0.8	14.0	7.3	11.5	24.4	7.6	6.4	7.8	3.5	6.8	8.4
4	2	8	7	-----	8.0	18.2	7.6	13.6	22.7	7.6	3.0	6.1	8.0	4.6	10.6
2	3	9	7	-----	-----	21.7	6.7	8.3	18.3	5.0	5.0	3.3	5.0	15.0	11.7
72	33	37	72	1.4	1.1	8.8	8.6	13.3	25.9	7.3	6.9	9.0	4.1	4.6	9.0
1	2	10	8	-----	-----	24.0	2.0	2.0	22.0	8.0	-----	2.0	4.0	20.0	16.0
22	6	29	16	1.9	0.3	23.2	4.9	8.7	22.6	8.7	7.1	6.8	1.9	9.0	4.9
38	20	27	40	1.7	0.5	18.7	9.6	8.9	13.5	8.1	8.4	9.3	4.9	6.6	9.8
15	4	4	10	1.8	-----	17.4	12.9	6.4	16.5	7.8	7.3	13.8	3.7	3.7	9.2
23	16	23	30	1.7	0.7	19.1	8.4	9.7	12.4	8.4	8.7	7.7	5.4	7.7	10.1
47	21	67	46	1.2	1.4	15.5	5.6	10.2	19.1	9.8	5.8	8.3	3.7	11.8	8.1
10	8	15	11	2.5	0.8	22.9	5.7	6.6	13.1	5.7	6.6	8.2	6.6	12.3	9.0
8	-----	8	6	1.4	2.7	12.3	4.1	9.6	26.0	12.3	1.4	11.0	-----	11.0	8.2
11	5	17	6	0.8	0.8	8.1	8.1	16.1	21.8	10.5	2.4	8.9	4.0	13.7	4.8
11	4	16	11	0.7	1.4	12.1	5.7	7.9	21.4	12.9	7.9	7.9	2.9	11.4	7.8
7	4	11	12	0.9	1.8	21.8	3.6	10.9	15.5	5.5	9.1	6.4	3.6	10.0	10.9
175	148	560	254	1.8	1.0	22.8	4.9	6.8	15.7	9.6	5.7	4.9	4.1	15.6	7.1
154	127	524	222	2.0	1.1	22.3	4.8	7.0	15.0	9.9	5.6	4.8	4.0	16.5	7.0
21	21	36	32	0.7	0.5	27.3	5.5	5.0	20.3	7.7	6.7	5.0	5.0	8.6	7.7
265	115	375	301	1.0	0.9	16.7	5.9	10.6	21.0	7.6	6.0	7.6	3.3	10.8	8.6
8	6	10	9	1.1	1.1	20.7	5.4	8.7	17.4	4.3	5.4	8.7	6.5	10.9	9.8
11	-----	17	26	2.1	2.1	14.9	7.7	12.9	22.7	5.1	4.6	5.7	-----	8.8	13.4
11	5	6	12	-----	1.0	10.5	9.5	11.4	25.7	6.7	3.8	10.5	4.8	5.7	11.4
11	10	7	9	0.8	1.5	22.3	2.3	10.0	18.5	9.2	6.9	8.5	7.7	5.4	6.9
5	4	4	2	-----	3.2	12.7	3.2	7.9	23.8	15.9	9.5	7.9	6.4	6.3	3.2
50	22	71	61	1.1	0.9	13.5	7.5	10.0	23.2	6.1	6.4	7.7	3.4	10.9	9.3
10	3	8	9	-----	1.5	18.3	6.4	14.7	16.5	6.4	8.3	9.2	2.8	7.3	8.3
15	7	33	14	1.4	-----	15.4	4.8	13.0	16.8	6.7	8.7	7.2	3.4	15.9	6.7
9	4	25	8	1.4	-----	22.2	5.0	9.3	12.1	10.0	7.1	6.4	2.9	17.9	5.7
6	11	32	15	-----	18.4	7.7	6.1	16.3	11.7	7.1	7.1	3.1	5.6	16.3	7.7
9	1	5	10	1.2	1.2	15.3	9.4	9.4	23.5	8.2	3.2	10.6	1.2	5.9	11.8
15	5	31	36	1.1	1.1	18.7	3.7	11.4	18.7	8.4	5.1	5.5	1.8	11.3	13.2
5	5	12	6	-----	30.5	-----	-----	8.5	15.9	4.9	6.1	6.1	6.1	14.6	7.3
9	7	5	10	-----	0.8	25.8	3.9	11.7	24.2	5.5	3.9	7.0	5.5	3.9	7.8
91	25	109	74	1.2	0.8	15.3	5.7	10.8	23.1	8.5	5.6	8.8	2.4	10.6	7.2

TABLE 33.—Deaths of Males and Females 15 Years and Over from Selected

Occupation (Showing annually at least 50 deaths)	Deaths: 1913							
	All causes	Typhoid fever	Other epidemic diseases	Tuberculosis	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system
Agriculture, transportation and other outdoor	5,278	84	79	713	352	500	1,026	475
Draymen, hackmen and teamsters.....	445	9	4	87	18	34	60	50
Farmers, planters and farm laborers.....	2,275	35	48	252	183	265	493	215
Gardeners, florists, nurserymen and vine growers.....	197	2	1	25	15	15	43	24
Livery stable keepers and hostlers.....	63	-----	-----	5	1	8	14	8
Lumbermen and raftsmen.....	129	3	3	13	11	3	15	7
Miners and quarrymen.....	764	5	9	123	42	55	165	63
Sailors, pilots and oystermen.....	244	8	2	40	13	21	48	24
Steam railroad employees.....	379	6	1	68	17	35	42	20
Stockraisers, herders and drovers.....	452	9	9	54	32	49	76	40
Others of this class.....	330	7	2	46	20	24	61	24
All other occupations	111	2	5	24	7	7	19	3
No occupation.....	2,901	22	48	363	178	329	625	240
Females	11,638	111	206	1,560	1,315	1,371	2,321	1,047
All occupations	1,186	13	15	204	131	133	201	99
Teachers in schools.....	110	2	2	26	18	15	13	7
Bookkeepers, clerks and copyists.....	63	3	3	17	5	8	3	3
Nurses and midwives.....	82	2	-----	7	15	4	16	6
Servants.....	279	1	3	49	22	37	50	27
Dressmakers and seamstresses.....	95	-----	-----	8	18	9	18	2
All other occupations.....	557	5	7	97	53	60	101	54
No occupation	10,452	98	191	1,356	1,184	1,238	2,120	948

Causes, Classified by Occupation, with Per Cents, for California: 1913—Concluded.

Per cent															
Infant's disease and nephritis.	Suicide.	Other violence.	All other causes.	Typhoid fever.	Other epidemic diseases.	Tuberculosis.	Cancer.	Diseases of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Bright's disease and nephritis.	Suicide.	Other violence.	All other causes.
414	139	676	483	1.6	1.5	13.5	6.7	9.6	19.4	9.0	6.2	7.9	2.6	12.8	9.2
31	13	78	32	2.0	0.9	19.6	4.1	7.6	15.5	11.2	4.5	7.0	2.9	17.5	7.2
183	42	175	246	1.5	2.1	11.1	8.0	11.7	21.7	9.5	6.1	8.0	1.8	7.7	10.8
23	8	16	18	1.0	0.5	12.7	7.6	7.6	21.8	12.2	3.6	11.7	4.1	8.1	9.1
6		11	3			7.9	1.6	12.7	22.2	12.7	11.1	9.5		17.5	4.8
11	4	38	11	2.3	2.3	10.1	8.5	2.3	11.7	5.4	7.8	8.5	3.1	29.5	8.5
63	18	99	71	0.6	1.2	16.1	5.5	7.2	21.6	8.2	6.7	8.2	2.4	13.0	9.3
12	8	37	18	3.3	0.8	16.4	5.3	8.6	19.7	9.8	5.3	4.9	3.3	15.2	7.4
30	14	101	21	1.6	0.3	17.9	4.5	9.2	11.1	5.3	6.3	7.9	3.7	26.7	5.5
41	16	44	44	2.0	2.0	12.0	7.1	10.8	16.8	8.9	8.4	9.1	3.5	9.7	9.7
14	16	77	19	2.1	0.6	13.9	6.1	7.3	18.5	7.3	6.1	4.2	4.8	23.3	5.8
7	6	23	4	1.8	4.5	21.7	6.3	6.3	17.1	2.7	3.6	6.3	5.4	20.7	3.6
252	102	293	272	0.8	1.7	12.5	6.1	11.3	21.5	8.3	6.1	8.7	3.5	10.1	9.4
827	155	416	1,541	1.0	1.8	13.4	11.3	11.8	19.9	9.0	6.6	7.1	1.3	8.6	13.2
70	25	71	138	1.1	1.3	17.2	11.0	11.2	17.0	8.3	7.3	5.9	2.1	6.0	11.6
5	2	6	6	1.8	1.8	23.6	16.4	13.6	11.8	6.4	7.3	4.5	1.8	5.5	5.5
2	2	5	8	4.8	4.8	27.0	7.9	12.7	4.8	4.7	6.3	3.2	3.2	7.9	12.7
7		5	13	2.5		8.5	18.3	4.9	19.5	7.3	8.5	8.5		6.1	15.9
23	6	17	29	0.4	1.1	17.6	7.9	13.2	17.9	9.7	5.4	8.2	2.1	6.1	10.4
12	2	3	13			8.4	19.0	9.5	18.9	2.1	10.5	12.6	2.1	3.2	13.7
21	13	35	69	0.9	1.3	17.4	9.5	10.8	18.1	9.7	7.5	3.8	2.3	6.3	12.4
757	130	345	1,403	0.9	1.8	13.0	11.3	11.9	20.3	9.1	6.5	7.2	1.3	3.3	13.4

TABLE 34.—Deaths of Males and Females 15 Years and Over from Selected

Occupation (Showing annually at least 50 deaths)	Deaths: 1912									
	All causes	Typhoid fever	Other epidemic diseases	Tuberculosis	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of digestive system	Diseases of all-cause system
15 YEARS AND OVER	30,174	365	381	4,645	2,288	2,831	6,255	2,779	2,020	
Males	19,001	264	210	3,099	1,084	1,702	3,921	1,703	1,236	
All occupations.....	16,391	239	191	2,746	970	1,401	3,810	1,450	1,056	
Professional	969	9	7	156	65	118	206	57	55	
Architects, artists and teachers of art.....	59		1	9	7	5	12	3	5	
Clergymen.....	109			11	8	13	22	14	9	
Engineers and surveyors.....	250	7		46	12	28	55	9	8	
Lawyers.....	133		1	19	10	19	36	9	6	
Musicians and teachers of music.....	81	1		33	6	5	8	7	6	
Physicians and surgeons.....	147	1	3	11	10	27	38	8	11	
Others of this class.....	160		2	27	12	21	35	7	8	
Clrical and official	1,212	9	12	254	65	111	273	92	93	
Bookkeepers, clerks and copyists.....	570	4	7	179	22	44	108	43	45	
Bankers, brokers and officials of companies.....	193	2	4	16	11	21	49	21	12	
Collectors, auctioneers and agents.....	339	2	1	42	27	35	87	24	27	
Others of this class.....	110	1		17	5	11	29	4	12	
Mercantile and trading	1,303	16	8	188	98	111	334	96	94	
Apothecaries, pharmacists, etc.....	67		1	9	3	5	19	2	4	
Merchants and dealers.....	819	11	6	83	69	74	238	66	63	
Hucksters and peddlers.....	52			10	2	2	10	4	5	
Others of this class.....	305	5	1	86	28	30	67	23	24	
Public entertainment	372	5	3	58	15	41	63	31	43	
Hotel and boarding-house keepers.....	100	2		12	4	14	23	8	12	
Saloon keepers, liquor dealers, bartenders, restaurant keepers.....	272	3	3	46	11	27	40	23	31	
Personal service, police, military	450	9	7	72	23	36	81	41	35	
Barbers and hairdressers.....	100	4	1	24	5	10	16	6	4	
Policemen, watchmen, detectives.....	94	1	2	6	7	9	18	13	10	
Soldiers, sailors, marines (U. S.).....	128	2	2	15	5	11	21	8	13	
Others of this class.....	128	2	2	27	6	6	23	14	8	
Laboring and servant	3,420	65	35	724	144	222	534	326	194	
Laborers (not agricultural).....	3,005	59	32	622	131	192	463	291	172	
Servants.....	415	6	3	102	13	30	71	35	22	
Manufacturing and mechanical industry	3,349	41	34	579	199	314	705	258	222	
Bakers.....	89	4		16	2	12	22	3	8	
Blacksmiths.....	177	1	4	22	12	19	42	22	12	
Boot and shoe makers.....	96	2		9	6	9	26	9	7	
Butchers.....	113	2		19	6	7	20	11	17	
Cabinet makers and upholsterers.....	59	1	1	7	10	7	13	1	4	
Carpenters.....	685	6	11	83	48	71	166	62	34	
Compositors, printers and pressmen.....	98			28	6	4	17	10	10	
Engineers and firemen (not locomotive)	201	1	3	35	10	13	41	11	14	
Iron and steel workers.....	168	4	2	30	8	10	42	14	9	
Machinists.....	170	5	2	33	12	16	23	7	7	
Masons (brick and stone).....	89		1	14	8	7	18	4	8	
Painters, glaziers, varnishers.....	255	4	3	59	9	25	48	21	14	
Plumbers, gas and steam fitters.....	94	1		30	2	9	14	7	3	
Tailors.....	134			36	4	12	25	9	8	
Others of this class.....	921	10	7	158	56	93	188	67	67	

Causes, Classified by Occupation, with Per Cents, for California: 1912.

				Per cent											
Bright's disease and nephritis	Suicide	Other violence	All other causes	Typhoid fever	Other epidemic diseases	Tuberculosis	Cancer	Diseases of ner- vous system	Diseases of cir- culatory sys- tem	Diseases of res- piratory sys- tem	Diseases of di- gestive system	Bright's disease and nephritis	Suicide	Other violence	All other causes
2,131	802	2,563	3,114	1.2	1.3	15.4	7.6	9.4	20.7	9.2	6.7	7.1	2.6	8.5	10.3
1,381	676	2,155	1,631	1.4	1.1	16.1	5.7	9.0	20.6	9.0	6.3	7.3	3.6	11.3	8.6
1,203	576	1,891	1,358	1.5	1.2	16.8	5.9	8.6	20.2	8.8	6.4	7.3	3.5	11.5	8.3
91	27	79	69	1.0	0.7	16.6	6.9	12.6	21.9	6.1	5.9	9.7	2.9	8.4	7.3
4	4	5	4	-----	1.7	15.2	11.8	8.5	20.3	5.1	8.5	6.8	6.8	8.5	6.8
14	1	5	12	-----	-----	10.1	7.3	11.9	20.2	12.9	8.3	12.8	0.9	4.6	11.0
19	10	43	13	2.8	-----	18.4	4.8	11.2	22.0	3.6	3.2	7.6	4.0	17.2	5.2
20	2	4	7	-----	0.7	14.3	7.5	14.3	27.1	6.8	4.5	15.0	1.5	3.0	5.3
3	3	5	2	1.2	-----	40.7	7.4	6.2	9.9	8.6	9.9	8.7	3.7	6.2	2.5
18	1	4	15	0.7	2.0	7.5	6.8	18.4	25.9	5.4	7.5	12.2	0.7	2.7	10.2
13	6	13	16	-----	1.3	16.9	7.5	13.1	21.9	4.4	5.0	8.1	3.7	8.1	10.0
105	54	71	70	0.7	1.0	20.9	5.4	9.2	22.5	7.6	7.9	8.7	4.4	5.9	5.8
38	24	29	27	0.7	1.2	31.4	3.9	7.7	19.0	7.5	7.9	6.7	4.2	5.1	4.7
20	11	13	13	1.0	2.1	8.3	5.7	10.9	25.4	10.9	6.2	10.4	5.7	6.7	6.7
32	17	18	27	0.6	0.3	12.4	8.0	10.3	25.6	7.1	8.0	9.4	5.0	5.3	8.0
15	2	11	3	0.9	-----	15.5	4.6	10.0	26.4	3.6	10.9	13.6	1.8	10.0	2.7
116	51	91	101	1.2	0.6	14.4	7.5	8.5	25.7	7.3	7.2	8.9	3.9	7.0	7.8
11	3	5	5	-----	1.5	13.4	4.5	7.5	23.3	3.0	6.0	16.4	4.5	7.5	7.4
65	30	46	68	1.4	0.7	10.1	8.4	9.0	29.1	8.1	7.7	7.9	3.7	5.6	8.3
6	1	10	6	-----	-----	19.2	-----	3.9	19.2	7.7	5.8	11.6	1.9	19.2	11.5
34	17	30	22	1.4	0.3	23.6	7.1	8.2	18.3	6.3	6.6	9.3	4.7	8.2	6.0
26	21	25	41	1.4	0.8	15.6	4.0	11.0	16.9	8.3	11.6	7.0	5.7	6.7	11.0
3	8	6	8	2.0	-----	12.0	4.0	14.0	23.0	8.0	12.0	3.0	8.0	6.0	8.0
23	13	19	33	1.1	1.1	16.9	4.0	9.9	14.7	8.5	11.4	8.5	4.8	7.0	12.1
32	26	41	47	2.0	1.6	16.0	5.1	8.0	18.0	9.1	7.8	7.1	5.8	9.1	10.4
5	6	6	13	4.0	1.0	24.0	5.0	10.0	16.0	6.0	4.0	5.0	6.0	6.0	13.0
9	4	9	6	1.1	2.1	6.4	7.4	9.6	19.1	13.8	10.6	9.6	4.3	9.6	6.4
6	11	17	17	1.6	1.6	11.7	3.9	8.6	16.4	6.2	10.1	4.7	8.6	13.3	13.3
12	5	9	11	1.6	1.6	21.1	4.7	4.7	20.3	10.9	6.2	9.4	3.9	7.0	8.6
189	141	585	261	1.9	1.0	21.2	4.2	6.5	15.6	9.6	5.7	5.5	4.1	17.1	7.6
161	114	541	227	2.0	1.1	20.7	4.4	6.4	15.4	9.7	5.7	5.3	3.8	18.0	7.5
23	27	44	34	1.5	0.7	24.6	3.1	7.2	17.1	8.4	5.3	6.8	6.5	10.6	8.2
265	126	308	298	1.2	1.0	17.3	5.9	9.4	21.1	7.7	6.6	7.9	3.8	9.2	8.9
5	4	6	7	4.5	-----	18.0	2.2	13.5	24.7	3.4	9.0	5.6	4.5	6.7	7.9
12	6	8	17	0.6	2.3	12.4	6.8	10.7	23.7	12.4	6.8	6.8	3.4	4.5	9.6
14	4	1	9	2.1	-----	9.4	6.2	9.4	27.1	9.4	7.3	14.6	4.1	1.0	9.4
9	3	10	9	1.8	-----	16.8	5.3	6.2	17.7	9.7	15.0	8.0	2.7	8.8	8.0
5	3	3	4	1.7	1.7	11.9	16.9	11.8	22.0	1.7	6.8	8.5	5.1	5.1	6.8
56	18	64	66	0.9	1.6	12.1	7.0	10.4	24.2	9.1	5.0	8.2	2.6	9.3	9.6
5	3	3	12	-----	-----	28.6	6.1	4.1	17.3	10.2	10.2	5.1	3.1	3.1	12.2
16	6	34	17	0.5	1.5	17.4	5.0	6.5	20.4	5.5	7.0	7.9	3.0	16.9	8.4
11	6	24	8	2.4	1.2	17.9	4.8	5.9	25.0	8.3	5.3	6.5	3.6	14.3	4.8
13	9	29	14	2.9	1.2	19.4	7.1	9.4	13.5	4.1	4.1	7.7	5.3	17.1	8.2
10	2	4	13	-----	1.1	15.7	9.0	7.9	20.2	4.5	9.0	11.2	2.3	4.5	14.6
22	14	20	16	1.6	1.2	23.1	3.5	9.8	18.8	8.2	5.5	8.6	5.5	7.9	6.3
6	4	13	5	1.1	-----	31.9	2.1	9.6	14.9	7.4	3.2	6.4	4.3	13.8	5.3
11	11	7	11	-----	-----	26.9	3.0	8.9	18.7	6.7	6.0	8.2	8.2	5.2	8.2
70	33	82	90	1.1	0.7	17.1	6.1	10.1	20.4	7.3	7.3	7.6	3.6	8.9	9.8

TABLE 34.—Deaths of Males and Females 15 Years and Over from Selected

Occupation (Showing annually at least 50 deaths)	Deaths: 1913								
	All causes	Typhoid fever	Other epidemic diseases	Tuberculosis	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of all active system
Agricultural, transportation and other outdoor	5,208	84	82	685	355	435	1,097	156	31
Draymen, hackmen, teamsters	408	6	4	82	16	30	70	44	30
Farmers, planters and farm laborers	2,570	48	55	251	200	250	580	26	18
Gardeners, florists, nurserymen and vine growers	103	3	-----	30	17	7	45	12	10
Livery stable keepers and bootlers	56	-----	1	6	4	7	13	2	2
Lumbermen and raftsmen	139	3	2	16	5	5	25	10	6
Miners and quarrymen	728	5	7	133	44	45	157	69	2
Sailors, pilots and oystermen	244	4	2	25	12	25	49	31	20
Steam railroad employees	393	5	6	64	21	21	54	20	12
Stock raisers, herders and drovers	216	3	1	26	23	25	38	26	10
Others of this class	291	7	4	52	13	20	47	26	14
All other occupations	138	1	3	30	6	13	17	12	11
No occupation	2,610	25	19	323	114	301	611	253	146
Females	11,173	101	171	1,576	1,204	1,129	2,334	1,076	815
All occupations	1,024	20	11	240	84	88	191	84	71
Teachers in schools	101	2	3	22	13	14	12	12	5
Bookkeepers, clerks, copyists	68	1	2	27	5	4	9	5	3
Nurses and midwives	85	5	-----	17	12	4	19	4	10
Servants	240	4	1	53	11	20	52	17	14
Dressmakers and seamstresses	84	2	1	25	9	6	7	6	6
All other occupations	446	6	4	96	34	40	92	40	32
No occupation	10,149	81	100	1,336	1,120	1,041	2,143	992	744

Causes, Classified by Occupation, with Per Cents, for California: 1912—Continued.

				Per cent												
Bright's disease and nephritis.	Suicide.	Other violence.	All other causes.	Typhoid fever.	Other epidemic diseases.	Tuberculosis.	Cancer.	Diseases of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Bright's disease and nephritis.	Suicide.	Other violence.	All other causes.	
369	125	673	459	1.6	1.6	13.2	6.8	8.3	21.1	10.3	5.9	7.1	2.4	12.9	8.8	
17	9	75	25	1.5	1.0	20.1	3.9	7.3	17.2	10.8	7.3	4.2	2.2	18.4	6.1	
211	51	201	258	1.9	2.1	9.8	7.8	9.7	23.3	11.2	6.2	8.2	2.0	7.8	10.0	
16	3	15	16	1.6		15.5	8.8	3.6	23.3	11.4	9.8	8.3	1.6	7.8	8.3	
7	5	4	5		1.8	10.7	7.2	12.5	23.2	3.6	3.6	12.5	8.9	7.1	8.9	
7	3	46	11	2.2	1.4	11.5	3.6	3.6	18.0	7.2	4.3	5.0	2.2	33.1	7.9	
44	14	106	66	0.7	1.0	18.3	6.0	6.2	21.6	9.5	5.2	6.0	1.9	14.5	9.1	
15	11	43	17	1.6	0.8	10.2	4.9	10.3	20.1	12.7	4.1	6.2	4.5	17.6	7.0	
22	13	102	16	1.4	1.6	17.6	5.8	5.8	14.9	5.5	5.2	6.1	3.6	28.1	4.4	
16	4	19	25	1.4	0.5	12.0	10.6	11.6	17.6	12.0	4.6	7.4	1.9	8.8	11.6	
14	12	62	20	2.4	1.4	17.9	4.5	6.9	16.1	8.9	4.8	4.8	4.1	21.3	6.9	
10	5	18	22	0.7	2.2	21.7	4.4	9.4	12.3	8.7	8.0	7.3	3.6	13.0	8.7	
178	100	264	273	1.0	0.7	12.4	4.4	11.5	23.4	9.7	5.7	6.8	3.8	10.1	10.5	
750	126	408	1,483	0.9	1.5	14.1	10.8	10.1	20.9	9.6	7.3	6.7	1.1	3.7	13.3	
55	20	62	98	1.9	1.1	23.4	8.2	8.6	18.7	8.2	6.9	5.4	1.9	6.1	9.6	
3	1	6	8	2.0	3.0	21.8	12.9	13.8	11.9	11.9	4.9	3.0	1.0	5.9	7.9	
	3	4	5	1.5	2.9	39.7	7.4	5.9	13.2	7.4	4.4		4.4	5.9	7.3	
2			12	5.9		20.0	14.1	4.7	22.3	4.7	11.8	2.4			14.1	
16	9	20	23	1.7	0.4	22.1	4.6	8.3	21.7	7.1	5.8	6.7	3.7	8.3	9.6	
4	2	5	11	2.4	1.2	29.8	10.7	7.1	8.3	7.1	7.1	4.8	2.4	6.0	13.1	
30	5	27	39	1.4	0.9	21.5	7.6	9.0	20.6	9.0	7.4	6.7	1.1	6.1	8.7	
665	106	346	1,385	0.8	1.6	13.2	11.0	10.3	21.1	9.8	7.3	6.9	1.0	3.4	13.6	

IV. STATISTICS OF MARRIAGES: 1913 AND 1912.

SYNOPSIS.

General Marriage Statistics.—Of the 31,383 marriages in 1913 and the 31,276 in 1912, those which were the first for both parties numbered 22,494 and 22,811, respectively, the per cents being 71.7 and 72.9 against the annual average of 72.8 for 1909 to 1913. The per cent distribution of marriages by number in order was about the same for 1912 as for the five year period, while 1913 shows comparatively few first marriages for both parties but relatively many where one or both parties had been married before.

The proportion of first marriages was considerably higher each year for San Francisco than for any other geographic division, though not as high as for certain small counties in the interior. The proportion of marriages where both parties were single is very low indeed, however, for Marin and San Mateo counties adjoining San Francisco, as well as for Orange adjoining Los Angeles.

In 1913 there were 3,606 marriages of single men with widows or divorcees, but only 2,469 marriages of single women with widowers or divorced men, the corresponding figures for 1912 being 3,422 and 2,387. Each year only six counties showed exceptions to the rule that there are more unions of bachelors with widows than of maids with widowers.

In 2,814 cases, or 8.9 per cent of all, in 1913 and in 2,656, or 8.5 per cent, in 1912, the marriages were the second or over for both grooms and brides. Marriages where both parties were widowed or divorced occur less in the metropolis than in the suburbs, and less in the whole urban area than in sparsely settled rural counties.

In 1913 and 1912, respectively, the single grooms numbered 26,100 and 26,233; the widowed 2,739 and 2,602; and the divorced 2,544 and 2,441. The per cents single were 83.2 and 83.9 as compared with the annual average of 83.8 for 1909 to 1913.

The single brides totaled 24,963 and 25,198 in 1913 and 1912, respectively; the widowed 3,181 and 3,014; and the divorced 3,239 and 3,064. The per cents single were 79.6 and 80.6 against the annual average of 80.6 for the last five years.

The per cents divorced, among both grooms and brides, were somewhat greater in 1913 and 1912 than the respective averages for 1909 to 1913. Through the past seven years, in fact, the per cent of divorcees among brides increased steadily, thus; 7.4 (1907), 7.7, 8.4, 9.5, 9.6, 9.8, and 10.3 (1913).

The years 1912 and 1913 are the first since the beginning of registration in 1905 to show divorcees ahead of widows in the number remarrying.

The widows outnumbered the widowers by 442, or 16.1 per cent, in 1913 and by 412, or 15.8 per cent, in 1912. Similarly, the divorcees outnumbered the divorced men by 695, or 27.3 per cent, in 1913 and by 623, or 25.5 per cent, in 1912.

The per cents widowed and divorced, both among grooms and brides, generally speaking, were greater each year for the counties south of Tehachapi than for those to the north.

More widowers, as well as widows, remarry in the country districts than in urban centers and, in the latter, more remarry in the suburbs than in the metropolis proper.

Divorced men and women likewise marry again considerably more in the surrounding suburbs than within the main city.

The high marriage-rates for suburban counties are largely due to the fact that these places are preferred by city couples, especially by divorced persons marrying once more.

Nativity of California Brides.—Of the 31,383 brides in 1913 only 1,294, or 4.1 per cent, were non-Caucasians, and of 31,276 in 1912 only 1,444, or 4.6 per cent, belonged to other than the white race. The Japanese, Chinese and Indian brides were nearly all single, while the negro brides included many widows and divorcees.

The white brides totaled 30,089 in 1913 and 29,832 in 1912, and among them the single were 23,853 and 23,931, respectively; the widowed, 3,070 and 2,916; and the divorced, 3,166 and 2,985.

The white brides were classified by nativity as follows: California, 10,804 and 11,203 in 1913 and 1912, respectively; other states, 13,271 and 12,713; and foreign born, 6,014 and 5,916.

The per cents single among all white brides were only 79.3 and 80.2 in 1913 and 1912 against the annual average of 80.4 for 1909 to 1913. On the other hand, the per cents divorced were no less than 10.5 and 10.0 as compared with the average of 9.6 for the last five years. In fact, the per cent of divorcees among white brides increased steadily ever since 1907, thus: 7.4 (1907), 7.7, 8.4, 9.6, 9.7, 10.0, and 10.5 (1913).

For Californian, other American, and foreign born white brides alike, the per cents single in 1913 and 1912 were generally below the average for 1909 to 1913; the per cents widowed substantially the same as the average; and the per cents divorced, almost without exception, considerably above the average. Each class of brides also shows a steady increase in the per cent divorced between 1907 and 1913.

The proportion of widows among all white brides was greater in 1913 and 1912 for Southern California than for Northern or Central California, while the proportion of divorcees was somewhat less each year for the counties south of Tehachapi than for those to the north.

Widows remarry more in country districts than in urban centers, but divorcees remarry more in the metropolitan area than in the rural counties. However, both widows and divorcees remarry more in suburban counties, like Marin and San Mateo, than in San Francisco, the metropolis proper.

In substantially each element of the population—Californian, other American, or foreign—more divorcees, as well as widows, remarry in the suburban territory than within the metropolis itself.

The per cent distribution of white brides by nativity was as follows for 1913 and 1912: California, 35.9 and 37.6; other states, 44.1 and 42.6; and foreign, 20.0 and 19.8. The annual average per cents for 1909 to 1913 were: California, 38.4; other states, 42.1; and foreign, 19.5.

Over half the white brides in both 1913 and 1912 were native daughters in as many as thirty counties, all north of Tehachapi. On the other hand, over half the brides both years were born in other states in only seven counties in or near Southern California, while at least one fourth

of the brides each year were foreign born merely in San Francisco and two other counties.

In 1913 and 1912, respectively, the per cents born in California among the single white brides were 38.6 and 40.2 against the average of 41.2 for 1909 to 1913; among the divorced were 30.2 and 31.3 against the average of 31.7; and among the widowed were 20.8 and 22.4 against the average of 22.4. In all parts of the State the native daughters form the bulk of the single brides and a large proportion of the divorced, but a small proportion of the widowed.

In 1913 and 1912 the per cents born elsewhere in the United States than here, among the divorced were 56.3 and 55.9 against the average of 55.2 for the past five years; among the widowed were 53.2 and 51.9 against the average of 52.1; and among the single were only 41.3 and 39.8 against the average of 39.3. In general, a larger proportion of the divorcees than of the widows remarrying in California were born elsewhere in the United States, while relatively few of the single brides here were born in other states.

The per cents foreign born in 1913 and 1912, respectively, among the widowed were 26.0 and 25.7 as compared with the average for 1909 to 1913 of 25.5; among the single were 20.1 and 20.0 as compared with the average of 19.5; and among the divorced were only 13.5 and 12.8 as compared with the average of 13.1. Throughout California, as a rule, the proportion of foreign born brides is highest among the widowed, and next among the single, being very low indeed among the divorced.

While the bulk of the single brides were born in California or other states, the great bulk of the divorcees were born elsewhere in the United States, and most of the widows were likewise born outside of California, either in other states or abroad. The proportion foreign born, though relatively great among widows, is especially small among divorcees, nearly all the divorced brides being natives of California or other states.

GENERAL MARRIAGE STATISTICS.

Number in Order.—Table 1, which follows, shows the number in order of marriages, with per cents, for the three main and eight minor geographic divisions, as well as certain other groups of counties, in both 1913 and 1912. Similar figures for individual counties, arranged alphabetically, may be found in Tables 9 and 10, *post*.

TABLE 1.—Marriages Classified by Number in Order, with Per Cents, for Geographic Divisions:* 1913 and 1912.

Geographic division	Total marriages	Number of marriage				Per cent of marriages			
		First of both parties	First of groom only	First of bride only	Second or over of both	First of both parties	First of groom only	First of bride only	Second or over of both
1913									
THE STATE	31,383	22,494	3,606	2,469	2,814	71.7	11.5	7.9	8.9
Northern California	2,287	1,676	260	155	196	73.3	11.3	6.8	8.6
Coast counties	1,131	837	122	80	92	74.0	10.8	7.1	8.1
Interior counties	1,156	839	138	75	104	72.6	11.9	6.5	9.0
Central California	16,947	12,366	1,975	1,262	1,344	73.0	11.7	7.4	7.9
San Francisco	5,940	4,520	634	399	387	76.1	10.7	6.7	6.5
Other bay counties	4,583	3,188	575	409	411	69.6	12.5	8.9	9.0
Coast counties	1,681	1,208	189	143	141	71.9	11.2	8.5	8.4
Interior counties	4,743	3,450	577	311	405	72.7	12.2	6.6	8.5
Southern California	12,149	8,452	1,371	1,052	1,274	69.6	11.3	8.6	10.5
Los Angeles	7,584	5,365	826	638	755	70.7	10.9	8.4	10.0
Other counties	4,565	3,087	545	414	519	67.6	11.9	9.1	11.4
Northern and Central California	19,234	14,042	2,235	1,417	1,540	73.0	11.6	7.4	8.0
Coast counties	13,335	9,753	1,520	1,031	1,031	73.2	11.4	7.7	7.7
Interior counties	5,899	4,289	715	386	509	72.7	12.1	6.6	8.6
Metropolitan area	10,523	7,708	1,209	808	798	73.2	11.5	7.7	7.6
Rural counties	8,711	6,334	1,026	609	742	72.7	11.8	7.0	8.5
1912									
THE STATE	31,276	22,811	3,422	2,387	2,656	72.9	11.0	7.6	8.5
Northern California	2,328	1,780	211	151	186	76.4	9.1	6.5	8.0
Coast counties	1,176	909	103	70	94	77.3	8.8	5.9	8.0
Interior counties	1,152	871	108	81	92	75.6	9.4	7.0	8.0
Central California	17,271	12,840	1,901	1,262	1,268	74.4	11.0	7.3	7.3
San Francisco	6,102	4,810	572	388	332	78.8	9.4	6.4	5.4
Other bay counties	4,710	3,305	610	393	402	70.2	13.0	8.3	8.5
Coast counties	1,737	1,257	183	126	171	72.4	10.5	7.3	9.8
Interior counties	4,722	3,468	536	355	363	73.4	11.4	7.5	7.7
Southern California	11,677	8,191	1,310	974	1,202	70.2	11.2	8.3	10.3
Los Angeles	7,490	5,352	794	602	742	71.5	10.6	8.0	9.9
Other counties	4,187	2,839	516	372	460	67.8	12.3	8.9	11.0
Northern and Central California	19,599	14,620	2,112	1,413	1,454	74.6	10.8	7.2	7.4
Coast counties	13,725	10,281	1,468	977	999	74.9	10.7	7.1	7.3
Interior counties	5,874	4,339	644	436	455	73.9	11.0	7.4	7.7
Metropolitan area	10,812	8,115	1,182	781	734	75.1	10.9	7.2	6.8
Rural counties	8,787	6,505	930	632	720	74.0	10.6	7.2	8.2

*For list of counties included in geographic divisions, see page 26.

It appears from Table 1 that of 31,383 marriages in California in 1913, altogether 22,494 were first marriages for both parties; 3,606 were first marriages for the grooms only; 2,469 were first marriages for the brides only; and 2,814 were second marriages or over for both grooms and brides. Of the 31,276 marriages in 1912, there were 22,811 in which neither party had been married before; 3,422 where only the grooms were single; 2,387 where only the brides were single; and 2,656 where both grooms and brides were widowed or divorced.

Analysis of the per cents for the State is facilitated by a calculation of annual averages for 1909 to 1913, the five-year period just ended, as given in the following tabular statement:

Number in order	Per cent of marriages					
	Annual average: 1909 to 1913	1913	1912	1911	1910	1909
STATE TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
First of both parties.....	72.8	71.7	72.9	73.0	72.5	73.6
First of groom only.....	11.0	11.5	11.0	11.2	11.0	10.5
First of bride only.....	7.8	7.9	7.6	7.7	8.0	8.0
Second or over of both.....	8.4	8.9	8.5	8.1	8.5	7.9

The per cent distribution of marriages by number in order for 1912 alone was about the same as the respective annual average per cents for 1909 to 1913. In 1913, however, the per cent of marriages which were the first for both parties, 71.7, falls much below the average of 72.8 for the five-year period. On the other hand, the per cents of marriages which were the first for the groom or the bride only, and also which were the second or over for both parties, stand somewhat higher for 1913 alone than the corresponding averages for 1909 to 1913.

Reference to Table 1, *ante*, indicates that the per cent of first marriages for both parties was much higher in both 1913 and 1912 for the territory north of Tehachapi, 73.0 and 74.6, respectively, than for Southern California, 69.6 and 70.2. The per cents for Northern California were 73.3 and 76.4, and for Central California were 73.0 and 74.4.

The per cent of first marriages was somewhat greater each year for the metropolitan area, 73.2 and 75.1, than for the rural counties north of Tehachapi, 72.7 and 74.0. Within the metropolitan area, however, there are wide differences between the per cents for San Francisco and for the other bay counties, the per cents for the metropolis proper being no less than 76.1 in 1913 and 78.8 in 1912 (or the highest among geographic divisions), but only 69.6 and 70.2, respectively, for the group of suburban counties (Alameda, Contra Costa, Marin and San Mateo). Similarly, the per cents of first marriages were 70.7 and 71.5 for Los Angeles, but as low as 67.6 and 67.8 for the other counties south of Tehachapi.

Examination of Tables 9 and 10, *post*, shows that the proportion of marriages which were the first for both parties is very high for certain small counties. Thus, all of the 5 marriages in Mariposa in 1913 were first marriages for both parties, while the per cent of first mar-

riages was also very high in 1912 for Sierra (90.9), Sutter (89.3), and Mariposa (87.5).

On the other hand the per cents of first marriages are very low indeed for individual counties adjoining San Francisco and Los Angeles. Thus, for counties adjoining San Francisco the per cents were only 65.9 and 65.5 for San Mateo in 1913 and 1912, and as low as 63.3 and 63.2, respectively, for Marin. Likewise, the per cents of first marriages for Orange County, adjoining Los Angeles, were only 62.9 in 1913 and 63.4 in 1912. There are only a few other counties in the State where in 1913 or 1912 less than 70.0 per cent of the marriages were first marriages for both parties, the additional counties in 1913 being Amador, Calaveras, Kern, Mono, Plumas, Riverside, Sacramento, San Diego, Santa Cruz, Shasta, Sierra, Siskiyou, Sutter, Yolo, and Yuba, and in 1912 Alpine, Del Norte, Inyo, Sacramento, San Bernardino, San Diego, Santa Barbara, and Yuba.

In 1913 there were 3,606 marriages, which were the first for only the grooms, as compared with only 2,469, which were the first for only the brides. Similarly in 1912, the first marriages for only the grooms numbered 3,422 against only 2,387 for the first marriages of the brides alone. The excess of first marriages of grooms over first marriages of brides was 1,137, or 46.1 per cent, in 1913, and 1,035, or 43.4 per cent, in 1910. In other words, the number of single men marrying widowed or divorced women is greater by over two fifths than the number of single women marrying widowed or divorced men. No main or minor geographic division of California shows any departure from this rule, that there are more unions of bachelors with widows than of maids with widowers. In fact, there are exceptions to the rule, and only slight exceptions at that, for only six of the whole fifty-eight counties in either 1913 or 1912, the six for 1913 being Colusa, El Dorado, Humboldt, Imperial, Solano, and Tulare, and the six for 1912 being Lake, Lassen, Modoc, Placer, Sutter, and Tulare. In Trinity and Tuolumne in 1913, and in Calaveras, Colusa, Inyo, and Shasta in 1912 there were exactly the same number of marriages where only the grooms were single as where only the brides were single. But in all the remaining counties of the State the rule holds good that there are more marriages between bachelors and widows than between maidens and widowers.

Further reference to Table 1, *ante*, shows that the per cent of marriages which were the second or over for both grooms and brides (8.9 per cent for the State in 1913 and 8.5 per cent for 1912) is higher for Southern California than for Northern and Central California. The per cents in 1913 and 1912, respectively, were 10.5 and 10.3 for the counties south of Tehachapi as compared with 8.0 and 7.4 for those to the north, being 8.6 and 8.0 for Northern California and 7.9 and 7.3 for Central California. The per cent of marriages where both parties were widowed or divorced was highest of all each year for the counties of Southern California other than Los Angeles, 11.4 in 1913 and 11.0 in 1912 against 10.0 and 9.9, respectively, for Los Angeles alone. In Northern and Central California the per cents for the rural counties were 8.5 and 8.2 in 1913 and 1912 as compared with 7.6 and 6.8, respectively, for the metropolitan area. Within the metropolitan area, moreover, the per cents were no less than 9.0 in 1913 and 8.5 in 1912 for the suburban counties against only 6.5 and

5.4, respectively, or the lowest of all each year, for San Francisco alone. Marriages between widowed or divorced men and women occur less in San Francisco than in the suburbs and less in an urban center like San Francisco or Los Angeles than in sparsely settled rural districts. Thus, it appears from Tables 9 and 10, *post*, that the counties in which over one tenth of the marriages were between widowers and widows were suburban or rural counties, as follows: Lassen, Madera, Marin, Orange, Riverside, Sacramento, San Diego, Santa Barbara, Shasta, Siskiyou, Sonoma, Tehama, and Trinity in 1913; and Butte, El Dorado, Inyo, Lake, Marin, Orange, Riverside, San Diego, San Mateo, Santa Clara, and Yuba in 1912.

Status of Grooms.—The table which follows gives for each geographic division in 1913 and 1912 the civil status or marital condition of the grooms—whether single, widowed, or divorced—at the time of marriage. Similar figures for individual counties, arranged alphabetically, appear in Tables 9 and 10, *post*.

TABLE 2.—Grooms Classified by Marital Condition, with Per Cents, for Geographic Divisions: 1913 and 1912.

Geographic division	Grooms				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
1913							
THE STATE	31,383	26,100	2,739	2,544	83.2	8.7	8.1
<i>Northern California</i>	2,287	1,933	180	171	84.6	7.9	7.5
Coast counties	1,131	969	83	86	84.8	7.6	7.6
Interior counties	1,156	977	94	85	84.5	8.1	7.4
<i>Central California</i>	16,947	14,341	1,293	1,308	84.6	7.7	7.7
San Francisco	5,940	5,154	397	389	86.8	6.7	6.5
Other bay counties	4,583	3,763	375	445	82.1	8.2	9.7
Coast counties	1,681	1,397	148	136	83.1	8.8	8.1
Interior counties	4,743	4,027	378	338	84.9	8.0	7.1
<i>Southern California</i>	12,149	9,823	1,261	1,065	80.8	10.4	8.8
Los Angeles	7,584	6,191	765	628	81.6	10.1	8.3
Other counties	4,565	3,632	496	437	79.5	10.9	9.6
<i>Northern and Central California</i>	19,234	16,277	1,478	1,479	84.6	7.7	7.7
Coast counties	13,335	11,273	1,003	1,066	84.5	7.6	7.9
Interior counties	5,899	5,004	472	423	84.8	8.0	7.2
Metropolitan area	10,523	8,917	772	834	84.8	7.3	7.9
Rural counties	8,711	7,360	706	645	84.5	8.1	7.4
1912							
THE STATE	31,276	26,233	2,602	2,441	83.9	8.3	7.8
<i>Northern California</i>	2,328	1,991	179	158	85.5	7.7	6.8
Coast counties	1,176	1,012	86	78	86.1	7.3	6.6
Interior counties	1,152	979	93	80	85.0	8.1	6.9
<i>Central California</i>	17,271	14,741	1,222	1,308	85.3	7.1	7.6
San Francisco	6,102	5,382	357	363	88.2	5.9	5.9
Other bay counties	4,710	3,915	370	425	83.1	7.9	9.0
Coast counties	1,737	1,440	136	161	82.9	7.8	9.3
Interior counties	4,722	4,004	359	359	84.8	7.6	7.6
<i>Southern California</i>	11,677	9,501	1,204	975	81.4	10.3	8.3
Los Angeles	7,490	6,146	765	579	82.1	10.2	7.7
Other counties	4,187	3,355	436	393	89.1	10.4	9.5
<i>Northern and Central California</i>	19,599	16,732	1,491	1,466	85.4	7.1	7.5
Coast counties	13,725	11,749	949	1,027	85.6	6.9	7.5
Interior counties	5,874	4,983	452	439	84.8	7.7	7.5
Metropolitan area	10,812	9,297	727	788	86.0	6.7	7.3
Rural counties	8,787	7,435	674	678	84.6	7.7	7.7

Table 2 shows that of 31,383 grooms in 1913, some 26,100, or 83.2 per cent, were single; 2,739, or 8.7 per cent, widowed; and 2,544, or 8.1 per cent, divorced. Of the 31,276 grooms in 1912, the single were 26,233, or 83.9 per cent; the widowed 2,602, or 8.3 per cent; and the divorced 2,441, or 7.8 per cent.

The following tabular statement summarizes the per cents for the State for the five years, 1909 to 1913:

Marital condition	Per cent of grooms					
	Annual average: 1909 to 1913	1913	1912	1911	1910	1909
STATE TOTAL -----	100.0	100.0	100.0	100.0	100.0	100.0
Single -----	83.8	83.2	83.9	84.2	83.5	84.1
Widowed -----	8.7	8.7	8.3	8.5	8.8	9.0
Divorced -----	7.5	8.1	7.8	7.3	7.7	6.9

The per cent for single grooms in 1913 (83.2) falls below the average of 83.8 for 1909 to 1913, while the per cent in 1912 (83.9) was virtually the same as the five-year average. The per cent for widowed grooms was exactly the same in 1913 as for the five-year period (8.7), though in 1912 (8.3) it stood below the average. The per cents divorced in both 1913 and 1912 (8.1 and 7.8, respectively) were somewhat above the five-year average of only 7.5.

It appears from Table 2, *ante*, that in 1913 and 1912 relatively more grooms were single in Northern and Central California than in Southern California. The per cent single for the counties north of Tehachapi was 84.6 in 1913 and 85.4 in 1912, while for the counties to the south the per cents were only 80.8 and 81.4, respectively.

There is relatively little difference between the per cents for the metropolitan area (84.8 and 86.0) and for the rural counties (84.5 and 84.6) of Northern and Central California. However, there are wide differences in the metropolitan area between the per cents for San Francisco and the other bay counties. The per cent of single grooms in the metropolis proper was 86.8 in 1913 and 88.2 in 1912, these being the maximum per cents among geographic divisions, while for the suburban counties the per cents were, respectively, 82.1 and 83.1, or about the lowest outside Southern California. The per cents single were 81.6 and 82.1 for Los Angeles in 1913 and 1912, but only 79.5 and 80.1, respectively, for the other counties south of Tehachapi.

Examination of Tables 9 and 10, *post*, shows that the individual counties in which at least 90.0 per cent of the grooms were single were (in 1913) Calaveras, Del Norte, Lake, Mariposa, Mono, Nevada, Plumas, San Benito, Sierra, and Tuolumne, and (in 1912) Alpine, Del Norte, Mariposa, Mono, Plumas, Sierra, Siskiyou, and Trinity. On the other hand, those in which only 80.0 per cent or less of the grooms were single were Marin, Orange, Riverside, San Diego, and Trinity in 1913, and Inyo, Lake, Lassen, Orange, San Diego, and Yuba in 1912.

Reference to Table 2, *ante*, shows that the proportion of widowers among the grooms is much greater for Southern California than for Northern or Central California. The per cent widowed for the coun-

ties south of Tehachapi was 10.4 in 1913 and 10.3 in 1912 as compared with 7.7 and 7.1, respectively, for the counties to the north. The per cents were 10.1 and 10.2 for Los Angeles, and 10.9 and 10.4 for the other counties south of Tehachapi in 1913 and 1912, respectively. North of Tehachapi, the per cents were only 7.3 and 6.7 for the metropolitan area against 8.1 and 7.7 for the rural counties. Within the metropolitan area, moreover, the per cents were only 6.7 in 1913 and 5.9 in 1912 for the metropolis proper as compared with 8.2 and 7.9 for the suburban counties. Generally speaking, more widowers remarry in the rural counties than in metropolitan centers, and in the metropolitan district more remarry in the suburbs than in the main city.

The individual counties (shown in Tables 9 and 10, *post*) in which widowers formed at least one tenth (10.0 per cent) of all grooms in 1913 were: El Dorado, Santa Clara, Sutter, Tehama, Trinity, and Tulare north of Tehachapi; and Los Angeles, Riverside, San Diego, and Santa Barbara, in Southern California. In 1912 the counties in which 10.0 per cent or more of all grooms were widowers were: Butte, Inyo, Lake, Lassen, Merced, Modoc, Yolo, and Yuba, in Northern and Central California; and Los Angeles, Orange, San Bernardino, San Diego, and Santa Barbara, south of Tehachapi.

Further reference to Table 2, *ante*, shows that the proportion of divorced grooms, as of the widowed, is greater for the counties south of Tehachapi than for those to the north. The per cents divorced in 1913 and 1912, respectively, were 8.8 and 8.3 for Southern California as compared with 7.7 and 7.6 for Central California and 7.5 and 6.8 for Northern California, or 7.7 and 7.5 for both together. The per cents were 8.3 and 7.7 for Los Angeles in 1913 and 1912 against 9.6 and 9.5, respectively, for the other counties of Southern California. North of Tehachapi, however, the per cents divorced are not far from the same for the metropolitan area (7.9 and 7.3) as for the rural counties (7.4 and 7.7). Within the metropolitan area the per cents divorced are much less for San Francisco than for the suburbs, being only 6.5 and 5.9 for the metropolis proper as compared with 9.7 and 9.0 for the other bay counties. Thus, not nearly so many divorced men remarry in the main city itself as in the adjoining suburban counties.

The counties (given in Tables 9 and 10, *post*,) having at least 7.5 per cent of the grooms in 1913 divorced were: Alameda, Butte, Contra Costa, El Dorado, Glenn, Kern, Lassen, Madera, Marin, Monterey, Napa, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Tuolumne, and Yuba, north of Tehachapi; and Los Angeles, Orange, Riverside, and San Diego, in Southern California. The counties with 7.5 per cent or more divorced grooms in 1912 were: Alameda, Amador, Butte, Colusa, Inyo, Lake, Lassen, Madera, Marin, Napa, Sacramento, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Shasta, Sierra, Tuolumne, and Yuba, in Northern and Central California; and Los Angeles, Orange, Riverside, San Diego, and Santa Barbara, south of Tehachapi. The per cent of divorced grooms was notably high each year for Marin (12.0 and 11.2) and for San Mateo (11.5 and 10.9), adjoining San Francisco, as well as for Orange (13.1 and 11.4), adjoining Los Angeles.

Status of Brides.—The following table shows for the several geographic divisions in 1913 and 1912 the civil status or marital condition of the brides—whether single, widowed, or divorced—on the wedding day. Similar figures for individual counties, in alphabetical order, appear in Tables 9 and 10, *post*.

TABLE 3.—Brides Classified by Marital Condition, for Geographic Divisions: 1913 and 1912.

Geographic division	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
1913							
THE STATE	31,883	24,963	3,181	3,239	79.6	10.1	10.3
Northern California	2,287	1,881	231	225	80.1	10.1	9.8
Coast counties	1,181	917	112	102	81.1	9.9	9.0
Interior counties	1,156	914	119	123	79.1	10.3	10.6
Central California	16,947	13,628	1,504	1,815	80.4	8.9	10.7
San Francisco	5,940	4,919	450	571	82.8	7.6	9.6
Other bay counties	4,583	3,597	437	549	78.5	9.5	12.0
Coast counties	1,681	1,351	150	180	80.4	8.9	10.7
Interior counties	4,743	3,761	467	515	79.3	9.8	10.9
Southern California	12,149	9,504	1,448	1,199	78.2	11.9	9.9
Los Angeles	7,584	6,008	870	711	79.1	11.5	9.4
Other counties	4,565	3,501	576	488	76.7	12.6	10.7
Northern and Central California	19,234	15,459	1,735	2,040	80.4	9.0	10.4
Coast counties	13,335	10,784	1,149	1,402	80.9	8.6	10.5
Interior counties	5,899	4,675	586	638	79.3	9.9	10.8
Metropolitan area	10,523	8,516	887	1,120	80.9	8.4	10.7
Rural counties	8,711	6,943	848	920	79.7	9.7	10.6
1912							
THE STATE	31,276	25,198	3,014	3,064	80.6	9.6	9.8
Northern California	2,328	1,931	198	199	83.0	8.5	8.5
Coast counties	1,176	979	110	87	83.2	9.4	7.4
Interior counties	1,152	952	88	112	82.7	7.6	9.7
Central California	17,271	14,102	1,464	1,705	81.6	8.5	9.9
San Francisco	6,102	5,198	402	502	85.2	6.6	8.2
Other bay counties	4,710	3,608	438	574	78.5	9.3	12.2
Coast counties	1,787	1,383	183	171	79.6	10.5	9.9
Interior counties	4,722	3,823	441	458	81.0	9.3	9.7
Southern California	11,677	9,165	1,352	1,160	78.5	11.6	9.9
Los Angeles	7,490	5,954	855	681	79.5	11.4	9.1
Other counties	4,187	3,211	497	479	76.7	11.9	11.4
Northern and Central California	19,599	16,083	1,962	1,904	81.8	8.5	9.7
Coast counties	13,725	11,258	1,133	1,334	82.0	8.3	9.7
Interior counties	5,874	4,775	529	570	81.3	9.0	9.7
Metropolitan area	10,812	8,899	840	1,076	82.3	7.8	9.9
Rural counties	8,787	7,137	822	828	81.2	9.4	9.4

It appears from this table that of 31,383 brides in 1913, the single numbered 24,963, or 79.6 per cent; the widowed 3,181, or 10.1 per cent; and the divorced 3,239, or 10.3 per cent. Of the 31,276 brides in 1912, altogether 25,198, or 80.6 per cent, were single, 3,014, or 9.6 per cent, were widowed; and 3,064, or 9.8 per cent, were divorced.

The tabular statement which follows gives a summary of the per cents for the State for the five year period just ended:

Marital condition	Per cent of brides					
	Annual average: 1909 to 1913	1913	1912	1911	1910	1909
STATE TOTAL -----	100.0	100.0	100.0	100.0	100.0	100.0
Single -----	80.6	79.6	80.6	80.7	80.5	81.6
Widowed -----	9.9	10.1	9.6	9.7	10.0	10.0
Divorced -----	9.5	10.3	9.8	9.6	9.5	8.4

The per cent for single brides in 1913 (79.6) falls considerably below the five year average but in 1912 (80.6) was exactly the same as the average. The per cent widowed was somewhat more in 1913 (10.1) while somewhat less in 1912 (9.6) than the average of 9.9 for 1909 to 1913. The per cents for divorced brides, however, in both 1913 and 1912 (10.3 and 9.8, respectively) stand above the annual average of 9.5 for the five year period just ended. It may be added, furthermore, that the per cent divorced among brides has risen steadily ever since 1907, as follows: 1907, 7.4; 1908, 7.7; 1909, 8.4; 1910, 9.5; 1911, 9.6; 1912, 9.8; and 1913, 10.3.

Moreover, from the beginning of registration under the law of 1905, there were more widows than divorcees among brides each year until 1912, when divorcees outnumbered widows by 50 (3,064 against 3,014), divorcees likewise surpassing widows among brides in 1913 by 58 (3,239 against 3,181).

It may be noted that in 1913 the widowed grooms numbered only 2,739 against 3,181 for the brides, and that in 1912 the widowers totaled 2,602 and the widows 3,014. That is, the widows outnumbered the widowers by 442, or 16.1 per cent, in 1913, and by 412, or 15.8 per cent, in 1912. In 1913 the divorced grooms numbered only 2,544 and the brides 3,239, while in 1912, similarly, the divorced men remarrying totaled 2,441 and the women 3,064. In other words, the number of divorced women remarrying exceeded that of divorced men by 695, or 27.3 per cent, in 1913, and by 623, or 25.5 per cent, in 1912.

It appears from Table 3, *ante*, that in 1913 and 1912 relatively more brides were single in the counties north of Tehachapi than in those to the south. The per cent single among brides was 80.4 in 1913 and 81.8 in 1912 for Northern and Central California together against only 78.2 and 78.5 for Southern California. The per cents for the metropolitan area were 80.9 and 82.3 in 1913 and 1912, as compared with 79.7 and 81.2, respectively, for the rural counties north of Tehachapi. The per cent of single brides for San Francisco was 82.8 in 1913 and 85.2 in 1912, these being the maximum per cents among geographic divisions. At the same time, however, the per cent for the other bay counties was merely 78.5 each year, or the lowest outside Southern California. The per cents single were 79.1 and 79.5 for Los Angeles in 1913 and 1912, against only 76.7 each year for the other counties south of Tehachapi.

Examination of Tables 9 and 10, *post*, shows that the individual counties in which at least 90.0 per cent of the brides were single were Colusa, Mariposa, and Tuolumne in 1913, and Sierra and Sutter in

1912. On the other hand, the counties in which only 80.0 per cent or less of the brides were single were as follows: In 1913, Amador, Calaveras, Kern, Lassen, Los Angeles, Madera, Marin, Mendocino, Modoc, Mono, Orange, Plumas, Riverside, Sacramento, San Bernardino, San Diego, San Joaquin, San Mateo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Sonoma, Sutter, Tehama, Trinity, Yolo, and Yuba; and in 1912, Alpine, Butte, Del Norte, El Dorado, Inyo, Lake, Los Angeles, Marin, Merced, Monterey, Napa, Nevada, Orange, Riverside, Sacramento, San Bernardino, San Diego, San Joaquin, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Trinity, Tuolumne, and Yuba.

Reference to Table 3, *ante*, shows that the proportion of widows among brides, as of widowers among grooms, is much higher in Southern California than for Northern or Central California. The per cent of widowed brides for the counties south of Tehachapi was 11.9 in 1913 and 11.6 in 1912 as compared with 9.0 and 8.5, respectively, for the counties to the north, the per cents being 10.1 and 8.5 for Northern California and 8.9 and 8.5 for Central California. The per cents were 11.5 and 11.4 for Los Angeles in 1913 and 1912 against 12.6 and 11.9 for the other counties of Southern California. The per cents for the metropolitan area were 8.4 and 7.8 as compared with 9.7 and 9.4 for the rural counties north of Tehachapi. The per cents for San Francisco were only 7.6 and 6.6 in 1913 and 1912 against 9.5 and 9.3, respectively, for the other bay counties. As with widowers, so with widows, somewhat more remarry in the country districts than in urban centers, and, in the latter, more remarry in the suburbs than in the metropolis proper.

The individual counties (shown in Tables 9 and 10, *post*) in which widows formed at least one tenth (10.0 per cent) of all brides in 1913 were: Amador, Calaveras, El Dorado, Inyo, Kern, Lake, Marin, Mendocino, Modoc, Mono, Napa, Plumas, Sacramento, San Benito, San Joaquin, Santa Cruz, Shasta, Sonoma, Sutter, Tehama, Trinity, Tuolumne, Yolo, and Yuba, in Northern and Central California; and Los Angeles, Orange, Riverside, San Bernardino, and San Diego, in Southern California. In 1912 the counties in which 10.0 per cent or more of the brides were widows were: North of Tehachapi—Amador, Butte, Del Norte, El Dorado, Inyo, Marin, Mendocino, Merced, Monterey, Napa, Nevada, Plumas, Sacramento, San Benito, San Joaquin, Santa Clara, Santa Cruz, Solano, Stanislaus, Trinity, Yolo, and Yuba; and south of Tehachapi—Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Santa Barbara.

Further reference to Table 3, *ante*, shows that the proportion of divorced brides, unlike that of grooms, is slightly less for Southern California than for Northern or Central California, generally speaking. The per cent divorced among brides was 9.9 each year for the counties south of Tehachapi against 10.4 in 1913 and 9.7 in 1912 for those to the north, being 9.8 and 8.5 for Northern California and 10.7 and 9.9 for Central California. The per cents were 9.4 and 9.1 for Los Angeles in 1913 and 1912 as compared with no less than 10.7 and 11.4 for the other counties of Southern California. North of Tehachapi, however, the per cents divorced among brides are practically the same for the metropolitan area as for the rural counties, being 10.7 and 10.6, respectively, in 1913 and, similarly, 9.9 and 9.4 in 1912. Within the metropolitan area, on the contrary, the per cent of divorced brides (as of

grooms) is much less for San Francisco than for the other bay counties, the per cents divorced among brides being only 9.6 and 8.2 for the metropolis proper against as much as 12.0 and 12.2 for the suburban territory. While there is no very marked difference between the metropolitan area and the rural districts in the per cent divorced, whether among grooms or brides, yet there is a sharp contrast between the metropolis proper and the surrounding suburbs in the proportion of divorced persons among those remarrying, since both divorcees and divorced men remarry less in the main city than in the adjacent suburbs.

The individual counties (given in Tables 9 and 10, *post*) in which at least 7.5 per cent of all brides in 1913 were divorced were: Alameda, Amador, Butte, Calaveras, Contra Costa, Del Norte, Kern, Lassen, Madera, Marin, Mendocino, Merced, Monterey, Napa, Placer, Plumas, Sacramento, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Sonoma, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba, in Northern and Central California; and Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Santa Barbara, in Southern California. The counties with 7.5 per cent or more divorced brides in 1912 were: North of Tehachapi—Alameda, Alpine, Calaveras, Colusa, Contra Costa, Del Norte, Inyo, Kern, Kings, Lake, Lassen, Madera, Marin, Mariposa, Merced, Mono, Napa, Nevada, Sacramento, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Tehama, Trinity, Tuolumne, and Yuba; and south of Tehachapi—the whole eight counties, viz.: Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura. The per cent of divorced brides was especially high each year for Marin (16.6 in 1913 and 16.7 in 1912) and for San Mateo (17.6 and 17.7), adjacent to San Francisco, as well as for Orange (13.3 and 15.0), adjacent to Los Angeles.

In general, the proportion widowed and divorced, both among grooms and brides, is notably high for counties like Marin and San Mateo in the north and Orange in the south, adjacent to the great cities of San Francisco and Los Angeles. Analysis of marriage rates showed that there is a tendency on the part of many couples belonging to these cities to go to the suburbs to be married. This preference for a suburban town rather than the city proper as a place of marriage is most marked on the part of widowed and divorced persons marrying again, especially on the part of the divorced. The secretive divorcee even more than the romantic maiden enjoys the seclusion of a suburban Gretna Green.

NATIVITY OF CALIFORNIA BRIDES.

Race and Nativity.—The table below gives for California in 1913 and 1912 a classification of brides by race, nativity, and marital condition, as well as the per cent distribution by marital condition. The table also shows, for both years, the racial distinction of the non-Caucasian brides.

TABLE 4.—Brides Classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for California: 1913 and 1912.

Race or nativity	Brides				Per cent		
	Total	Single	Wid-owed	Di-vorced	Single	Wid-owed	Di-vorced
1913							
THE STATE	31,883	24,903	3,181	3,239	79.6	10.1	10.3
White	30,089	23,853	3,070	3,166	79.3	10.2	10.5
Born in California.....	10,804	9,209	638	967	85.2	5.9	8.9
Born in other states.....	13,271	9,856	1,634	1,781	74.3	12.3	13.4
Foreign born	6,014	4,788	798	428	79.6	13.3	7.1
Non-Caucasian	1,294	1,110	111	73	85.8	8.6	5.6
Negro	464	322	83	59	69.4	17.9	12.7
Indian	70	52	11	7	74.3	15.7	10.0
Chinese	42	35	6	1	83.3	14.8	2.4
Japanese	718	701	11	6	97.7	1.5	0.8
1912							
THE STATE	31,276	25,198	3,014	3,064	80.6	9.6	9.8
White	29,832	23,931	2,916	2,985	80.2	9.8	10.0
Born in California.....	11,208	9,617	662	934	85.9	5.8	8.3
Born in other states.....	12,713	9,529	1,514	1,670	75.0	11.9	13.1
Foreign born	5,916	4,785	750	381	80.9	12.7	6.4
Non-Caucasian	1,444	1,267	98	79	87.7	6.8	5.5
Negro	433	283	83	67	65.3	19.2	15.5
Indian	67	57	5	5	85.1	7.5	7.4
Chinese	38	34	2	2	89.5	5.3	5.2
Japanese	906	893	8	5	98.6	0.9	0.5

Considering first the non-Caucasian brides, one will observe that among them the per cents single were 85.8 in 1913 and 87.7 in 1912; the widowed 8.6 and 6.8; and the divorced 5.6 and 5.5. The per cents single were 97.7 and 98.6 among Japanese brides; 83.3 and 89.5 among the Chinese; 74.3 and 85.1 among Indians; and only 69.4 and 65.3 among negro brides. The per cents widowed were 17.9 and 19.2 for negro brides but only 15.7 and 7.5 for Indians and 14.3 and 5.3 for Chinese, being merely 1.5 and 0.9 for Japanese. Similarly, the per cents divorced were 12.7 and 15.5 for negro brides but only 10.0 and 7.4 for Indians and 2.4 and 5.2 for Chinese, being merely 0.8 and 0.5 for Japanese brides.

The per cents for non-Caucasians differ greatly from the per cents for white brides, the proportion of single brides among the non-Caucasians being relatively large on account of the preponderance of single brides among the Japanese, now the most numerous non-Caucasian element in the population of California. Incidentally, it may be noted that over nine tenths of all marriages of Japanese in California take place at San Francisco, the per cent of all Japanese marriages in the State occurring at this port being 93.3 for 1913 and 95.7 for 1912.

It seems that expectant Japanese bridegrooms from various points in the interior come to San Francisco to await the arrival of trans-Pacific steamships bringing groups of "picture brides" direct from the Flowery Kingdom.

However, the 1,294 non-Caucasian brides in 1913 form merely 4.1 per cent of the State total, while the 1,444 in 1912 form only 4.6 per cent. The Japanese brides in 1913 and 1912, numbered 718 and 906, representing per cents of 2.3 and 2.9 of State aggregates; the negro brides numbered 464 and 433 (or 1.5 and 1.4 per cent); the Indian brides 70 and 67 (or 0.2 per cent each year); and the Chinese brides 42 and 38 (or 0.1 per cent each year). On account of the relatively small (though increasing) proportion of non-Caucasians among California brides, and also because of the wide divergence between the non-Caucasian races in this State (with Japanese and Chinese from the Orient outnumbering somewhat American born negroes and Indians), attention will be directed in the following discussion only to the facts for the whites.

Of the 30,089 white brides in 1913 and the 29,832 in 1912, the single were 23,853 and 23,931, respectively; the widowed 3,070 and 2,916; and the divorced 3,166 and 2,985.

The white brides born in California numbered 10,804 and 11,203 in 1913 and 1912, and among them there were, respectively, 9,209 and 9,617 single; 638 and 652 widowed; and 957 and 934 divorced.

The brides born in other states totaled 13,271 and 12,713 in 1913 and 1912, of whom the single were, respectively, 9,856 and 9,529; the widowed 1,634 and 1,514; and the divorced 1,781 and 1,670.

The foreign born white brides were 6,014 in 1913 and 5,916 in 1912, among whom there were, respectively, 4,788 and 4,785 single; 798 and 750 widowed; and 428 and 381 divorced.

Analysis of the per cents in Table 4 for various classes of white brides is aided by the presentation in the following tabular statement of the annual averages for the five year period just ended:

Nativity	Annual average per cent of white brides: 1909 to 1913			
	Total	Single	Widowed	Divorced
STATE TOTAL.....	100.0	80.4	10.0	9.6
Born in California.....	100.0	86.3	5.7	8.0
Born in other states.....	100.0	75.1	12.8	12.6
Foreign born.....	100.0	80.5	13.0	6.5

The per cents for single white brides in 1913 especially, and for 1912 in less degree, 79.3 and 80.2, respectively, fall below the annual average of 80.4 for 1909 to 1913. The per cents for widowed brides, 10.2 and 9.8, are not far from the same as the average of 10.0, while the per cents for the divorced, 10.5 and 10.0, stand somewhat above the average of 9.6 for the five year period. It may be added that the per cent divorced among all white brides rose steadily throughout the past seven years, as follows: 7.4 (1907), 7.7, 8.4, 9.6, 9.7, 10.0, and 10.5 (1913).

Among white brides born in California, the per cents single in 1913 and 1912, respectively, 85.2 and 85.9, are considerably below the average of 86.3; the per cents widowed, 5.9 and 5.8, are about the same as the

average of 5.7; and the per cents divorced, 8.9 and 8.3, are somewhat above the average of 8.0. The per cent divorced among native California brides increased successively through the whole seven year period thus: 6.0 (1907), 6.3, 7.0, 7.7, 8.0, 8.3, and 8.9 (1913).

Among white brides born in other states the per cents single in the last two years, 74.3 and 75.0, are somewhat below the average of 75.1 for 1909 to 1913; the per cents widowed, 12.3 and 11.9, are about the same as the five year average of 12.3; and the per cents divorced, 13.4 and 13.1, are much above the average of 12.6. For brides born in other states the per cents divorced were successively 10.0, 10.4, 11.1, 12.8, 12.8 again, 13.1, and 13.4 in 1907 to 1913, increasing generally through the seven years.

Among foreign born white brides, the per cents single in 1913 and 1912, 79.6 and 80.9, were one below and one above the annual average of 80.5; the per cents widowed, 13.3 and 12.7, were one above and one below the average of 13.0; and the per cents divorced, 7.1 and 6.4, were likewise one above and one below the average of 6.5. The per cents divorced among foreign born brides were successively 4.8, 5.3, 6.0, 6.6, 6.3, 6.4, and 7.1 in 1907 to 1913, having fluctuated somewhat through the seven years. Moreover, the per cent divorced among foreign born white brides, 6.5 as an average for the last five year period, is much less than among brides born in California, 8.0, or than among those born in other states, 12.6.

Status of White Brides.—Table 5 below, shows, by numbers and per cents, the civil status or marital condition of the white brides at the time of marriage—whether single, widowed, or divorced—for the several geographic divisions of the State in both 1913 and 1912.

TABLE 5.—White Brides Classified by Marital Condition, with Per Cents, for Geographic Divisions: 1913 and 1912.

Geographic division	White brides				Per cent		
	Total	Single	Wid- owed	Di- vorced	Single	Wid- owed	Di- vorced
1913							
THE STATE	30,069	23,863	3,070	3,136	79.3	10.2	10.5
<i>Northern California</i>	2,244	1,800	224	220	80.2	10.0	9.8
Coast counties	1,113	904	108	101	81.2	9.7	9.1
Interior counties	1,131	896	116	119	79.2	10.3	10.5
<i>Central California</i>	16,049	12,901	1,465	1,783	79.8	9.1	11.1
San Francisco	5,215	4,217	434	564	80.9	8.3	10.8
Other bay counties	4,490	3,628	428	534	78.6	9.5	11.9
Coast counties	1,666	1,338	149	179	80.3	8.9	10.8
Interior counties	4,678	3,718	454	506	79.5	9.7	10.8
<i>Southern California</i>	11,796	9,252	1,381	1,163	78.4	11.7	9.9
Los Angeles	7,362	5,837	826	689	79.4	11.2	9.4
Other counties	4,444	3,415	555	474	76.8	12.5	10.7
<i>Northern and Central California</i>	18,293	14,601	1,660	2,003	79.8	9.2	11.0
Coast counties	12,484	9,987	1,119	1,378	80.0	9.0	11.0
Interior counties	5,809	4,614	570	625	79.4	9.8	10.8
Metropolitan area	9,705	7,745	862	1,098	79.8	8.9	11.3
Rural counties	8,588	6,856	827	905	79.8	9.6	10.6
1912							
THE STATE	29,832	23,981	2,916	2,935	80.2	9.8	10.0
<i>Northern California</i>	2,277	1,888	194	195	82.9	8.5	8.6
Coast counties	1,153	960	107	86	83.3	9.3	7.4
Interior counties	1,124	928	87	109	82.6	7.7	9.7
<i>Central California</i>	16,215	13,098	1,435	1,682	80.8	8.8	10.4
San Francisco	5,195	4,309	390	496	82.9	7.5	9.6
Other bay counties	4,633	3,640	429	564	78.6	9.2	12.2
Coast counties	1,721	1,371	180	170	79.7	10.4	9.9
Interior counties	4,666	3,778	436	452	81.0	9.3	9.7
<i>Southern California</i>	11,340	8,945	1,287	1,108	78.9	11.3	9.8
Los Angeles	7,249	5,797	805	647	80.0	11.1	8.9
Other counties	4,091	3,148	482	461	76.9	11.8	11.3
<i>Northern and Central California</i>	18,492	14,986	1,629	1,877	81.0	8.8	10.2
Coast counties	12,702	10,280	1,106	1,316	80.9	8.7	10.4
Interior counties	5,790	4,706	523	561	81.3	9.0	9.7
Metropolitan area	9,828	7,949	819	1,060	80.9	8.3	10.8
Rural counties	8,664	7,037	810	817	81.2	9.4	9.4

This table shows that the per cent single among white brides was higher each year for the counties north of Tehachapi than for those to the south. The per cents single in 1913 and 1912, respectively, were 79.8 and 81.0 for the counties north of Tehachapi against 78.4 and 78.9 for those to the south, being 80.2 and 82.9 for Northern California alone and 79.8 and 80.8 for Central California alone. The per cent single

in 1913 was exactly the same for the metropolitan area as for the rural counties north of Tehachapi, but in 1912 was 80.9 for the former against 81.2 for the latter. The per cent of single white brides was relatively high for San Francisco in both 1913 and 1912, 80.9 and 82.9, respectively, while comparatively low in both instances for the group of other bay counties, 78.6 each year. The per cents single were 79.4 and 80.0 for Los Angeles, as compared with 76.8 and 76.9 for the other counties south of Tehachapi.

The proportion of widows among white brides is higher for Southern California than for Northern or Central California. The per cents widowed for the counties south of Tehachapi were 11.7 and 11.3 in 1913 and 1912, respectively, against 9.2 and 8.8 for those to the north, being 10.0 and 8.5 for Northern California and 9.1 and 8.8 for Central California. The per cents for Los Angeles were 11.2 and 11.1, and for the rest of Southern California were 12.5 and 11.8 in 1913 and 1912, respectively. The per cents were 8.9 and 8.3 for the metropolitan area as compared with 9.6 and 9.4 for the rural counties of Northern and Central California. For San Francisco the per cents widowed were only 8.3 and 7.5, or the minimum each year; but for the other bay counties the per cents were considerably higher, 9.5 and 9.2. Of white widows it may therefore be said, as of widowers and widows of all races taken together, that more remarry in rural districts than in urban centers, but that in the metropolitan area more remarry in the suburbs than in the main city.

The proportion of divorcees among white brides, unlike that of widows, is somewhat less for the counties south of Tehachapi than for those to the north. The per cents divorced in 1913 and 1912, respectively, were 9.9 and 9.8 for Southern California against 11.0 and 10.2 for Northern and Central California together, being 9.8 and 8.6 for Northern California and 11.1 and 10.4 for Central California. The per cents were 9.4 and 8.9 for Los Angeles in 1913 and 1912 against no less than 10.7 and 11.3 for the other counties of Southern California. North of Tehachapi, on the other hand, the proportion of divorcees is somewhat greater for the metropolitan area than for the rural counties, the per cents for the former being 11.3 and 10.8 against 10.6 and 9.4 for the latter. Within the urban district, however, the proportion of divorcees among white brides is much less for San Francisco than for the other bay counties, the per cents being only 10.8 and 9.6 for the metropolis proper, but as much as 11.9 and 12.2 for the surrounding suburbs. Divorcees, unlike widows, remarry more in the metropolitan area than in the rural counties, while both divorcees and widows, like divorced men and widowers, remarry more in the suburbs of a great city than within the metropolis itself.

Status of White Brides (by Nativity).—The following table shows, for the several geographic divisions in 1913 and 1912, the civil status or marital condition—as single, widowed, or divorced—of the white brides classified by nativity—as born in California, born in other states, or foreign born. For convenience in presentation, the absolute numbers are omitted and only the per cent distributions are given here. The absolute numbers may be found, however, in Tables 11 and 12, *post*.

TABLE 6.—Per Cent Distribution, by Marital Condition, of White Brides Classified by Nativity, for Geographic Divisions: 1913 and 1912.

Geographic division	White brides								
	Per cent single among those—			Per cent widowed among those—			Per cent divorced among those—		
	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
1913									
THE STATE	85.2	74.3	79.6	5.9	12.3	13.3	8.9	13.4	7.1
Northern California	88.2	67.1	74.3	5.3	16.0	16.7	6.5	16.9	9.0
Coast counties	88.1	66.8	76.9	5.7	14.5	16.0	6.2	18.7	7.1
Interior counties	86.3	67.4	68.4	4.9	16.8	18.4	6.8	15.8	13.2
Central California	84.4	72.4	80.8	6.0	11.8	11.7	9.6	15.8	7.5
San Francisco	84.4	71.5	83.7	5.5	10.9	10.1	10.1	17.6	6.2
Other bay counties	84.8	71.8	74.6	6.2	11.4	14.5	9.0	16.8	10.9
Coast counties	86.3	71.1	79.0	4.8	18.3	13.1	8.9	15.6	7.9
Interior counties	83.3	73.9	82.3	6.6	12.5	11.4	10.1	13.6	6.3
Southern California	86.1	76.2	78.4	6.2	12.3	15.5	7.7	11.5	6.1
Los Angeles	86.9	77.4	79.5	5.0	11.8	14.8	8.1	10.8	5.7
Other counties	85.1	74.0	76.3	7.6	13.2	16.8	7.3	12.8	6.9
Northern and Central California	85.0	71.8	80.2	5.8	12.3	12.1	9.2	15.9	7.7
Coast counties	85.2	71.2	80.1	5.7	11.7	12.1	9.1	17.1	7.8
Interior counties	84.5	72.7	80.7	6.2	13.3	12.2	9.3	14.0	7.1
Metropolitan area	84.6	71.7	80.5	5.8	11.1	11.6	9.6	17.2	7.9
Rural counties	85.4	72.0	79.8	5.8	13.4	13.0	8.8	14.6	7.2
1912									
THE STATE	85.9	75.0	80.9	5.8	11.9	12.7	8.3	13.1	6.4
Northern California	88.4	72.4	82.6	5.0	13.7	12.4	6.6	13.9	5.0
Coast counties	88.6	69.3	85.7	5.2	17.8	10.1	6.2	12.9	4.2
Interior counties	88.2	74.7	74.4	4.7	10.7	18.3	7.1	14.6	7.3
Central California	84.9	73.5	81.8	6.0	11.2	11.6	9.1	15.3	6.6
San Francisco	85.9	73.5	86.1	5.5	9.7	8.5	8.6	16.8	5.4
Other bay counties	83.5	72.2	75.6	5.7	11.1	15.4	10.8	16.7	9.0
Coast counties	85.1	70.4	77.2	6.6	14.8	15.4	8.3	14.8	7.4
Interior counties	85.3	75.3	82.0	6.7	11.4	12.0	8.0	13.3	6.0
Southern California	87.7	76.2	78.9	5.6	12.2	14.8	6.7	11.6	6.3
Los Angeles	88.1	77.9	79.4	5.0	11.7	14.7	6.9	10.4	5.9
Other counties	87.3	73.0	77.7	6.4	13.1	14.9	6.3	13.9	7.4
Northern and Central California	85.4	73.4	81.8	5.9	11.5	11.7	8.7	15.1	6.5
Coast counties	85.1	72.2	82.0	5.7	11.7	11.4	9.2	16.1	6.6
Interior counties	86.0	75.2	81.2	6.2	11.3	12.6	7.8	13.5	6.2
Metropolitan area	84.6	72.9	82.3	5.6	10.4	11.0	9.8	16.7	6.7
Rural counties	86.1	73.9	81.0	6.2	12.5	12.9	7.7	13.6	6.1

Table 6 shows that the per cents single were no less than 85.2 in 1913 and 85.9 in 1912 among white brides born in California as compared with 79.6 and 80.9 among foreign born white brides and only 74.3 and 75.0 among those born in other states, the average per cents single for 1909 to 1913 being 86.3 for California born brides, 80.5 for the foreign, and merely 75.1 for brides born in other states. For every part of the State in both 1913 and 1912, except San Francisco in 1912 with the foreign born excelling, the per cent single is highest of all among brides born in California. As a rule, too, the per cent single is next highest among foreign born brides and lowest of all among those born elsewhere in the United States than here, a slight exception appearing for only one minor geographic division in 1912 alone.

In both 1913 and 1912 the per cent single was much higher for each class of brides in Los Angeles than for those in the other counties of Southern California. However, for the metropolitan area, as compared with the rural counties north of Tehachapi, the per cent single was notably higher each year for the former than for the latter only in the case of foreign born brides. Yet for San Francisco, in contrast with its suburbs, the per cent single was higher for the main city than for the suburban counties, not only among brides born abroad each year, but also among those born in California and in other states as well, in 1912, the per cents for Californian and other American brides in 1913 being about the same for San Francisco as for the other bay counties.

The per cents widowed were no less than 13.3 and 12.7 in 1913 and 1912 among foreign born brides and 12.3 and 11.9 among those born in other states against merely 5.9 and 5.8 among white brides born in California, the average per cents for the last five years being 13.0 for the foreign born and 12.3 for other Americans but merely 5.7 for native Californians. In general, the per cent widowed in 1913 and 1912 is highest of all among foreign born white brides, slight exceptions appearing for only San Francisco and one or two other minor geographic divisions in either year. Without exception, the per cent widowed is decidedly lowest among white brides born in the Golden State.

Generally speaking, the per cent widowed was less among each class by nativity for Los Angeles than for the other counties south of Tehachapi; for the metropolitan area than for the rural counties north of Tehachapi; and for San Francisco than for the other bay counties. No marked exceptions appear in either 1913 or 1912 to the general rule that in each element of the population more widows remarry in rural districts than in urban centers, and in the latter more remarry in the suburbs than in the main city.

The per cents divorced were as great as 13.4 and 13.1 in 1913 and 1912 among white brides born in other states, but only 8.9 and 8.3 among those born in California and 7.1 and 6.4 among the foreign born, the average per cents for 1909 to 1913 being 12.6 for other Americans but merely 8.0 for Californians and 6.5 for the foreign born. Everywhere in California in both 1913 and 1912, generally speaking, the per cent divorced was greatest among brides born in other states, next among those born in this State, and lowest of all among the foreign born. Slight exceptions to the rule, due to unusually high per cents divorced among foreign born brides, appear in the interior counties of Northern California both years as well as in one or two other minor geographic divisions each year.

The per cent divorced was much less in both 1913 and 1912 among all classes of brides except native Californians in Los Angeles than in the other counties of Southern California, and was likewise generally less for each element except other Americans in San Francisco than in the adjoining bay counties. However, the per cents divorced were greater each year for the metropolitan area than for the rural counties north of Tehachapi for each class of brides without any exception whatever. The rule that widows remarry more in rural districts than in urban centers has been found to hold good for each class of white brides, whether born in California, in other states, or in foreign countries. Similarly, the rule that divorcees, unlike widows, remarry more in the metropolitan area than in the rural counties holds true for each of the three elements of the population. Divorcees and widows are alike, however, in that for substantially each element of the population—Californian, other American, or foreign—many more remarry in the suburban territory than within the metropolis proper.

Nativity of White Brides.—The following table shows, by numbers and per cents, the nativity of white brides—as born in California, born in other states, or foreign born—for the several geographic divisions in 1913 and 1912. Corresponding figures, with others, may be found for individual counties, arranged alphabetically, in Table 15, *post*.

TABLE 7.—White Brides Classified by Nativity, with Per Cents, for Geographic Divisions: 1913 and 1912.

Geographic division	White brides				Per cent		
	Total	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
1913							
THE STATE.....	30,089	10,804	13,271	6,014	35.9	44.1	20.0
<i>Northern California</i>	2,244	1,282	689	323	57.1	28.5	14.4
Coast counties.....	1,113	647	241	225	58.1	21.7	20.2
Interior counties.....	1,131	635	398	98	56.1	35.2	8.7
<i>Central California</i>	16,049	7,278	5,118	3,653	45.3	31.9	22.8
San Francisco.....	5,215	2,214	1,355	1,646	42.4	26.0	31.6
Other bay counties.....	4,490	2,152	1,431	907	47.9	31.9	20.2
Coast counties.....	1,666	848	513	305	50.9	30.8	18.3
Interior counties.....	4,678	2,064	1,819	796	44.1	38.9	17.0
<i>Southern California</i>	11,796	2,244	7,514	2,088	19.0	63.7	17.3
Los Angeles.....	7,352	1,240	4,753	1,359	16.9	64.6	18.5
Other counties.....	4,444	1,004	2,761	679	22.6	62.1	15.3
<i>Northern and Central California</i>	18,298	8,560	5,756	3,976	46.8	31.5	21.7
Coast counties.....	12,484	5,851	3,540	3,083	46.9	28.4	24.7
Interior counties.....	5,800	2,699	2,217	893	46.4	38.2	15.4
Metropolitan area.....	9,705	4,366	2,786	2,553	45.0	28.7	26.3
Rural counties.....	8,588	4,194	2,971	1,423	48.8	34.6	16.6
1912							
THE STATE.....	29,832	11,203	12,713	5,916	37.6	42.6	19.8
<i>Northern California</i>	2,277	1,306	670	299	57.5	29.4	13.1
Coast counties.....	1,153	649	287	217	56.3	24.9	18.8
Interior counties.....	1,124	656	383	82	58.6	34.1	7.3
<i>Central California</i>	16,215	7,669	4,840	3,706	47.3	29.8	22.9
San Francisco.....	5,195	2,268	1,254	1,673	43.7	24.1	32.2
Other bay counties.....	4,633	2,327	1,362	944	50.2	29.4	20.4
Coast counties.....	1,721	937	460	324	54.5	26.7	18.8
Interior counties.....	4,666	2,137	1,764	765	45.8	37.8	16.4
<i>Southern California</i>	11,340	2,226	7,203	1,911	19.6	63.5	16.9
Los Angeles.....	7,249	1,281	4,626	1,342	17.7	63.8	18.5
Other counties.....	4,091	945	2,577	569	23.1	63.0	13.9
<i>Northern and Central California</i>	18,492	8,977	5,510	4,005	48.5	29.8	21.7
Coast counties.....	12,702	6,181	3,363	3,158	48.6	26.5	24.9
Interior counties.....	5,790	2,796	2,147	847	48.3	37.1	14.6
Metropolitan area.....	9,828	4,565	2,616	2,617	46.8	26.6	26.6
Rural counties.....	8,664	4,382	2,804	1,388	50.6	33.4	16.0

It appears from this table that of 30,089 white brides in 1913 and 29,832 in 1912, those born in California were 10,804 and 11,203; those born in other states were 13,271 and 12,713; and the foreign born were 6,014 and 5,916. The per cents born in California were, respectively, 35.9 and 37.6; in other states, 44.1 and 42.6; and abroad, 20.0 and 19.8. It may be added that for 1909 to 1913 the annual average per cents were as follows: California, 38.4; other states, 42.1; and foreign born, 19.5.

The proportion of native daughters among the brides is very high indeed for Northern as well as Central California, but very low indeed for Southern California. The per cents born in California in 1913 and 1912 were 57.1 and 57.5 for Northern California and 45.3 and 47.3 for Central California, or 46.8 and 48.5 for both together, against as little as 19.0 and 19.6 for Southern California. The per cents were only 16.9 and 17.7 for Los Angeles and 22.6 and 23.1 for the other counties south of Tehachapi. North of Tehachapi, likewise, the per cents were less for the metropolitan area (45.0 and 46.8) than for the rural counties (48.8 and 50.6), and also less for San Francisco (42.4 and 43.7) than for the other bay counties (47.9 and 50.2).

The proportion of white brides born elsewhere in the United States than California is very high indeed for the counties south of Tehachapi, but is quite low for those to the north. The per cent of brides born in other states was 63.7 in 1913 and 63.5 in 1912 for Southern California, being no less than 64.6 and 63.8 for Los Angeles and 62.1 and 63.0 for the other counties. On the other hand, the corresponding per cents for the counties north of Tehachapi were only 31.5 and 29.8, being 31.9 and 29.8 for Central California and 28.5 and 29.4 for Northern California. The per cents born in other states were 28.7 and 26.6 for the metropolitan area as compared with 34.6 and 33.4 for the rural counties. For San Francisco the per cents were only 26.0 and 24.1 against 31.9 and 29.4 for the other bay counties.

The proportion of foreign born brides is notably high only for Central California, especially in San Francisco and its suburbs. The per cents foreign born among white brides in 1913 and 1912, respectively, were 22.8 and 22.9 for Central California as compared with only 17.3 and 16.9 for Southern California and 14.4 and 13.1 for Northern California. The per cent for the counties north of Tehachapi was 21.7 each year, being no less than 26.3 in 1913 and 26.6 in 1912 for the metropolitan area, but merely 16.6 and 16.0 for the rural counties. The per cents foreign born were as great as 31.6 and 32.2 for San Francisco as compared with 20.2 and 20.4 for the other counties on the bay. Similarly, the per cents were greater for Los Angeles (18.5 each year) than for the other counties south of Tehachapi (15.3 in 1913 and 13.9 in 1912).

Inspection of Table 15, *post*, shows that one half or more of the white brides in both 1913 and 1912 were native daughters, the per cent being far above 50.0 in most cases, in the following thirty counties: Amador, Butte, Calaveras, Colusa, El Dorado, Humboldt, Lake, Lassen, Marin, Mariposa, Mendocino, Modoc, Mono, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Benito, San Joaquin, San Luis Obispo, Shasta,

Solano, Sonoma, Sutter, Trinity, Tuolumne, Yolo, and Yuba. The per cent was also over 50.0 for Glenn and Sierra in 1913 alone, as well as for Alpine, Inyo, Madera, San Mateo, Santa Clara, Santa Cruz, and Tehama in 1912 alone.

In contrast with the long list of counties, all north of Tehachapi, with half the brides born in California, the counties with at least this proportion of white brides born in other states include only Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, and San Diego for both 1913 and 1912, as well as Inyo, Mono, and Tulare in 1913 and Del Norte (by chance) in 1912, these few counties being mainly in or near Southern California.

Moreover, at least one fourth (25.0 per cent) of the white brides were foreign born in both 1913 and 1912 only in Contra Costa and Kings besides San Francisco, with the highest per cents foreign born each year, though at least 25.0 per cent of the brides were born abroad also in Amador and Humboldt in 1912 alone.

Nativity of White Brides (by Status).—Table 8, below, shows for the several geographic divisions in 1911 and 1910, the nativity (as born in California, born in other states, or foreign born) of white brides classified by civil status or marital condition—as single, widowed, or divorced. For convenience in presentation, only the per cent distributions are given here, though the absolute numbers appear in Tables 13 and 14, *post*.

TABLE 8.—Per Cent Distribution, by Nativity, of White Brides Classified by Marital Condition, for Geographic Divisions: 1913 and 1912.

Geographic division	White brides								
	Per cent born in California among the—			Per cent born in other states among the—			Per cent foreign born among the—		
	Single	Widowed	Divorced	Single	Widowed	Divorced	Single	Widowed	Divorced
1913									
THE STATE.....	38.6	20.8	30.2	41.3	53.2	56.3	20.1	26.0	13.5
Northern California.....	62.8	30.4	37.7	23.9	45.5	49.1	13.3	24.1	13.2
Coast counties.....	63.1	34.3	39.6	17.8	32.4	44.6	19.1	33.3	15.8
Interior counties.....	62.6	26.7	36.1	29.9	57.8	53.0	7.5	15.5	10.9
Central California.....	48.0	29.5	39.3	29.0	41.3	45.3	23.0	29.2	15.4
San Francisco.....	44.3	27.9	39.5	23.0	33.9	42.4	32.7	38.2	18.1
Other bay counties.....	51.7	31.3	36.3	29.1	38.1	45.1	19.2	30.6	16.6
Coast counties.....	54.7	27.5	41.9	27.3	45.6	44.7	18.0	26.9	13.4
Interior counties.....	46.2	30.0	41.3	36.2	50.0	48.8	17.6	30.0	9.9
Southern California.....	20.9	10.0	14.9	61.8	67.1	74.6	17.3	22.9	10.7
Los Angeles.....	18.5	7.5	14.5	63.0	68.0	74.3	18.5	24.5	11.2
Other counties.....	25.0	13.7	15.4	59.8	65.8	74.7	15.2	20.5	9.9
Northern and Central California.....	49.8	29.6	39.1	28.3	41.9	45.7	21.9	28.5	15.2
Coast counties.....	50.0	29.8	38.6	25.3	36.9	43.9	24.7	33.3	17.5
Interior counties.....	49.4	29.3	40.3	35.0	51.6	49.6	15.6	19.1	10.1
Metropolitan area.....	47.7	29.6	38.0	25.8	36.0	43.7	26.5	34.4	18.3
Rural counties.....	52.2	29.6	40.5	31.2	48.0	48.1	16.6	22.4	11.4
1912									
THE STATE.....	40.2	22.4	31.3	39.8	51.9	55.9	20.0	25.7	12.8
Northern California.....	61.2	33.5	44.6	25.7	47.4	47.7	13.1	19.1	7.7
Coast counties.....	59.9	31.8	46.5	20.7	47.7	43.0	19.4	20.5	10.5
Interior counties.....	62.6	35.6	43.1	30.8	47.1	51.4	6.6	17.3	5.5
Central California.....	49.7	32.3	41.5	27.2	37.8	43.9	23.1	29.9	14.6
San Francisco.....	45.2	32.0	39.5	21.4	31.3	42.3	33.4	36.7	18.2
Other bay counties.....	53.4	31.0	44.7	27.0	35.2	40.2	19.6	33.8	15.1
Coast counties.....	56.1	34.4	45.9	23.6	37.8	40.0	18.3	27.8	14.1
Interior counties.....	48.2	32.8	38.0	35.2	46.1	51.8	16.6	21.1	10.2
Southern California.....	21.8	9.6	13.5	61.3	68.4	75.6	16.9	22.0	10.9
Los Angeles.....	19.4	7.9	13.8	62.2	67.5	74.0	18.4	24.6	12.2
Other counties.....	26.2	12.5	13.0	59.8	69.9	77.9	14.0	17.6	9.1
Northern and Central California.....	51.1	32.4	41.8	27.0	38.9	44.3	21.9	28.7	13.9
Coast Counties.....	51.2	32.0	43.0	23.6	35.4	41.2	26.2	36.0	15.8
Interior counties.....	51.1	33.3	39.0	34.3	46.3	51.7	14.6	20.4	9.3
Metropolitan area.....	48.9	31.5	42.3	24.0	33.3	41.2	27.1	35.2	16.5
Rural counties.....	53.6	33.3	41.3	30.4	44.6	48.3	16.0	22.1	10.4

Analysis of the per cents for the State in Table 8, as well as for Table 7, preceding it, is facilitated by the annual averages for 1909 to 1913 presented in the following tabular statement:

Marital condition	Annual average per cent of white brides: 1909 to 1913			
	Total	Born in California	Born in other states	Foreign born
STATE TOTAL	100.0	38.4	42.1	19.5
Single	100.0	41.2	39.3	19.5
Widowed	100.0	22.4	52.1	25.5
Divorced	100.0	31.7	55.2	13.1

It appears from Table 8 that in 1913 and 1912, respectively, the per cents born in California among the single brides were 38.6 and 40.2 against the average of 41.2 shown in the tabular statement; among the divorced were 30.2 and 31.3 against the average of 31.7; and among the widowed were 20.8 and 22.4 against the average of 22.4. In all parts of the State both years the native daughters formed the bulk of the single brides and a large proportion of the divorced, but a small proportion of the widowed brides.

The per cents born in the Golden State among the single, widowed, and divorced brides were very much less for Southern California each year than for Northern or Central California. Generally speaking, the per cents born in California were also less for Los Angeles in all cases than for the other counties south of Tehachapi, the only exception being for divorced brides in 1912. With the same exception, the per cents born in this State were likewise less for the metropolitan area than for the rural counties north of Tehachapi. Except for divorced brides in 1913 and the widowed in 1912, each only slightly, the rule is also that within the metropolitan area the proportion of native daughters among each class of brides is less for the metropolis proper than for the surrounding suburbs.

In 1913 and 1912, respectively, the per cents born in other states than California among the divorced were 56.3 and 55.9 against the average for 1909 to 1913 of 55.2; among the widowed were 53.2 and 51.9 against the average of 52.1; and among the single were only 41.3 and 39.8 against the average of 39.3. Except for three minor geographic divisions in 1913 and one in 1912, a larger proportion each year of the divorcees than of the widows remarrying were born elsewhere in the United States than California. In Los Angeles the per cents born in other states were no less than 74.3 and 74.0 among the divorced brides in 1913 and 1912, and 68.0 and 67.5 among the widowed; for the other counties south of Tehachapi the per cents for divorcees were as great as 74.7 and 77.9, and for widows were 65.8 and 69.9.

The per cents born in other states among single, widowed, and divorced brides were much greater each year for Southern California than for Northern or Central California. North of Tehachapi the per cents born in other states were less among brides of each class in the

metropolitan area than in the rural counties, and were also less in San Francisco than in the other bay counties in all cases except the divorced for 1912 alone. The per cents born elsewhere in the United States were generally greater for Los Angeles, however, than for the rest of Southern California, especially in 1913.

The per cents foreign born in 1913 and 1912, respectively, among the widowed were 26.0 and 25.7 as compared with the average for the last five years of 25.5; among the single were 20.1 and 20.0 as compared with the average of 19.5; and among the divorced were only 13.5 and 12.8 as compared with the average of 13.1. Except for two minor geographic divisions in 1913 alone, the per cent of foreign born brides was highest in every instance each year among the widowed, next highest among the single, and lowest of all among the divorced.

The per cents foreign born were higher for San Francisco than for the other bay counties in all cases except the divorced for 1913 alone, and were likewise higher without exception for the metropolitan area than for the rural counties north of Tehachapi. The per cent foreign born was also higher among all classes of brides in Los Angeles than in the rest of Southern California.

Of all the single brides in 1913 and 1912, the per cents born in California were 38.6 and 40.2; the per cents born in other states were 41.3 and 39.8; and the per cents foreign born were 20.1 and 20.0. For 1909 to 1913, moreover, the annual average per cents were: California, 41.2; other states, 39.3; and foreign, 19.5. That is, California girls and other Americans each form about two fifths of the single brides in this State, while only about one fifth of the single brides here were born abroad.

Of the widows remarrying in 1913 and 1912, the per cents born elsewhere in the United States than California were 53.2 and 51.9; the per cents foreign born were 26.0 and 25.7; and the per cents born in California were 20.8 and 22.4. Moreover, the annual average per cents for the last five years were: Other states, 52.1; foreign countries, 25.5; and California, 22.4. As compared with the per cent distributions of all white brides taken together, the per cents for the widowed are very high for those born outside California, whether in other states or foreign countries, while the per cents are relatively very low for the widowed brides born in the Golden State.

Of all the divorcees remarrying in 1913 and 1912, the per cents born in other states were as great as 56.3 and 55.9; the per cents born in California were 30.2 and 31.3; and the per cents foreign born were only 13.5 and 12.8. Furthermore, the annual average per cents for 1909 to 1913 were: Other American, 55.2; Californian, 31.7; and foreign, only 13.1. In short, American women born in other states comprise the great bulk of the divorced brides in California, and while the native daughters form a considerable proportion of the divorcees remarrying, the foreign born constitute a very small proportion indeed.

Conclusion.—That the native daughters should constitute the bulk of the single brides necessarily follows from the fact that most of the marriageable young women in California were born and reared in the glorious climate of this Golden State. That the great bulk of the widowed brides were born outside California, and only a comparatively small proportion were born within the Golden State, would naturally be expected from the fact that very few women born in California are old enough to have been married and become widows, so that most of the widows remarrying here must necessarily have come from other states or foreign countries. The very great disparity between the proportions for the American born and the foreign born among divorced brides is evidently due to a difference in the attitude toward divorce and remarriage between the American and foreign elements of the white population.

TABLE 9.—Marriages Classified by Number in Order and

County	Total marriages	Number of marriage				Groom			
		First of both parties	First of groom only	First of bride only	Second or over of both	Single	Wid-owed	Di-vorced	Single
CALIFORNIA	31,383	22,404	3,606	2,469	2,814	26,100	2,739	2,544	24,963
Alameda	2,874	2,074	307	256	237	2,381	247	246	2,830
Alpine									
Amador	64	44	10	6	4	54	6	4	50
Butte	223	163	22	17	21	185	21	17	180
Calaveras	29	20	7		2	27	1	1	20
Colusa	34	28	2	3	1	30	2	2	31
Contra Costa	239	174	26	19	20	200	15	24	193
Del Norte	24	20	3	1		23	1		21
El Dorado	39	29	3	4	3	32	4	3	33
Fresno	964	722	85	68	79	807	87	60	790
Glenn	64	52	5	3	4	57	2	5	55
Humboldt	281	230	15	21	15	245	21	15	251
Imperial	205	154	18	20	13	172	20	13	174
Inyo	50	39	5	2	4	44	4	2	41
Kern	423	292	56	39	36	348	32	43	331
Kings	188	151	12	11	14	163	11	14	162
Lake	35	28	4	1	2	32	2	1	29
Lassen	36	28	4		4	32		4	28
Los Angeles	7,584	5,335	826	638	755	6,191	765	628	6,003
Madera	89	64	10	5	10	74	7	8	69
Marin	1,069	689	180	102	118	839	89	131	791
Mariposa	5	5				5			5
Mendocino	180	126	26	14	14	152	15	13	140
Merced	147	115	16	7	9	131	7	9	122
Modoc	53	39	6	3	5	45	5	3	42
Mono	2	1	1			2			1
Monterey	168	119	20	17	12	139	12	17	135
Napa	189	136	18	17	18	154	12	23	153
Nevada	76	65	6	2	3	71	5		67
Orange	1,359	835	191	142	171	1,046	135	178	997
Placer	89	72	6	4	7	78	7	4	76
Plumas	26	17	7		2	24	1	1	17
Riverside	415	279	43	38	55	322	54	39	317
Sacramento	1,142	771	191	62	118	962	97	83	833
San Benito	50	40	5	2	3	45	2	3	42
San Bernardino	680	492	74	50	64	566	65	49	542
San Diego	1,410	936	174	130	170	1,110	174	123	1,066
San Francisco	5,940	4,520	634	399	387	5,154	397	399	4,919
San Joaquin	692	487	100	47	57	588	47	57	585
San Luis Obispo	186	144	18	9	15	162	14	10	153
San Mateo	381	251	62	32	36	313	24	44	283
Santa Barbara	314	227	31	24	32	258	35	21	251
Santa Clara	1,024	731	109	97	87	840	102	82	823
Santa Cruz	253	174	37	18	24	211	18	24	192
Shasta	141	93	21	12	15	114	13	14	105
Sierra	11	7	3	1		10	1		8
Siskiyou	164	109	25	12	18	134	12	18	121
Solano	174	133	13	16	12	146	13	15	149
Sonoma	408	287	55	25	41	342	32	34	312
Stanislaus	230	188	16	8	18	204	14	12	196
Sutter	36	25	5	3	3	30	6		28
Tehama	109	77	13	5	14	90	13	6	82
Trinity	14	10	1	1	2	11	3		11
Tulare	340	261	24	26	29	285	39	16	287
Tuolumne	50	43	2	2	3	45	1	4	45
Ventura	182	144	14	10	14	158	13	11	154
Yolo	125	84	26	8	7	110	8	7	92
Yuba	94	64	13	10	7	77	6	11	74

Marital Condition of Parties, with Per Cents, for Counties: 1913.

Bride		Per cent of marriages				Per cent of grooms			Per cent of brides		
Wid- owed	Di- vorced	First of both parties	First of groom only	First of bride only	Second or over of both	Single	Wid- owed	Di- vorced	Single	Wid- owed	Di- vorced
3,181	3,239	71.7	11.5	7.9	8.9	88.2	8.7	8.1	79.6	10.1	10.3
269	275	72.2	10.7	8.9	8.2	82.8	8.6	8.6	81.1	9.3	9.6
8	6	68.8	15.6	9.4	6.2	84.4	9.4	6.2	78.1	12.5	9.4
20	28	72.8	10.9	7.9	8.4	83.7	6.3	10.0	80.7	8.4	10.9
4	5	69.0	24.1		6.9	98.1	3.5	3.4	69.0	13.8	17.2
1	2	82.4	5.9	8.8	2.9	88.2	5.9	5.9	91.2	2.9	5.9
20	26	72.8	10.9	7.9	8.4	83.7	6.3	10.0	80.7	8.4	10.9
1	2	83.3	12.5	4.2		95.8	4.2		87.5	4.2	8.3
4	2	74.4	7.7	10.2	7.7	82.0	10.3	7.7	84.6	10.3	5.1
94	70	75.7	8.9	7.1	8.3	84.6	9.1	6.3	82.8	9.9	7.3
6	3	81.3	7.8	4.7	6.2	89.1	3.1	7.8	85.9	9.4	4.7
17	18	81.9	5.3	7.5	5.3	87.2	7.5	5.3	89.3	6.1	4.6
13	18	75.1	8.8	9.8	6.3	83.9	9.8	6.3	84.9	6.3	8.8
6	3	78.0	10.0	4.0	8.0	88.0	8.0	4.0	82.0	12.0	6.0
47	45	69.0	13.3	9.2	8.5	82.3	7.5	10.2	78.3	11.1	10.6
15	11	80.3	6.4	5.9	7.4	86.7	5.9	7.4	86.2	8.0	5.8
4	2	80.0	11.4	2.9	5.7	91.4	5.7	2.9	82.9	11.4	5.7
3	5	77.8	11.1		11.1	88.9		11.1	77.8	8.3	13.9
870	711	70.7	10.9	8.4	10.0	81.6	10.1	8.3	79.1	11.5	9.4
7	13	71.9	11.3	5.6	11.2	83.1	7.9	9.0	77.5	7.9	14.6
117	181	63.3	16.5	9.4	10.8	79.8	8.2	12.0	72.6	10.8	16.6
		100.0				100.0			100.0		
22	18	70.0	14.4	7.8	7.8	84.5	8.3	7.2	77.8	12.2	10.0
14	11	78.2	10.9	4.8	6.1	89.1	4.8	6.1	83.0	9.5	7.5
8	3	73.6	11.3	5.7	9.4	84.9	9.4	5.7	79.2	15.1	5.7
1		50.0	50.0			100.0			50.0	50.0	
13	19	70.8	11.9	10.1	7.2	82.7	7.2	10.1	81.0	7.7	11.3
19	17	72.0	9.5	9.0	9.5	81.5	6.3	12.2	80.9	10.1	9.0
5	4	85.5	7.9	2.6	4.0	93.4	6.6		88.1	6.6	5.3
181	181	62.9	14.1	10.4	12.6	77.0	9.9	13.1	73.4	13.3	13.3
5	8	80.9	6.7	4.5	7.9	87.6	7.9	4.5	85.4	5.6	9.0
3	6	65.4	26.9		7.7	92.3	3.9	3.8	65.4	11.5	23.1
56	42	67.2	10.4	9.2	13.2	77.6	13.0	9.4	76.4	13.5	10.1
123	186	67.5	16.7	5.4	10.4	84.2	8.5	7.3	72.9	10.8	16.3
5	3	80.0	10.0	4.0	6.0	90.0	4.0	6.0	84.0	10.0	6.0
87	51	72.4	10.9	7.3	9.4	83.2	9.6	7.2	79.7	12.8	7.5
192	152	66.4	12.3	9.2	12.1	78.7	12.4	8.9	75.6	13.6	10.8
450	571	76.1	10.7	6.7	6.5	86.8	6.7	6.5	82.8	7.6	9.6
71	86	70.5	14.5	6.8	8.2	85.0	6.8	8.2	77.3	10.3	12.4
17	16	77.4	9.7	4.8	8.1	87.1	7.5	5.4	82.3	9.1	8.6
31	67	65.9	16.3	8.4	9.4	82.2	6.3	11.5	74.3	8.1	17.6
31	32	72.3	9.9	7.6	10.2	82.2	11.1	6.7	79.9	9.9	10.2
88	108	71.4	10.6	9.5	8.5	82.0	10.0	8.0	80.9	8.6	10.5
27	34	68.8	14.6	7.1	9.5	83.4	7.1	9.5	75.9	10.7	13.4
18	18	66.0	14.9	8.5	10.6	80.9	9.2	9.9	74.4	12.8	12.8
1	2	68.6	27.3	9.1		90.9	9.1		72.7	9.1	18.2
14	29	66.5	15.2	7.3	11.0	81.7	7.3	11.0	73.8	8.5	17.7
13	12	76.4	7.5	9.2	6.9	83.9	7.5	8.6	85.6	7.5	6.9
46	50	70.3	13.5	6.1	10.1	83.8	7.9	8.3	76.5	11.3	12.2
14	20	81.7	7.0	3.5	7.8	88.7	6.1	5.2	85.2	6.1	8.7
4	4	69.5	13.9	8.3	8.3	83.8	16.7		77.8	11.1	11.1
18	9	70.6	11.9	4.6	12.9	82.6	11.9	5.5	75.2	16.5	8.3
3		71.4	7.2	7.1	14.3	78.6	21.4		78.6	21.4	
25	28	76.8	7.1	7.6	8.5	83.8	11.5	4.7	84.4	7.4	8.2
5		86.0	4.0	4.0	6.0	90.0	2.0	8.0	90.0	10.0	
16	12	79.1	7.7	5.5	7.7	86.8	7.1	6.1	84.6	8.8	6.6
16	17	67.2	20.8	6.4	5.6	88.0	6.4	5.6	73.6	12.8	13.6
13	7	68.1	13.8	10.6	7.5	81.9	6.4	11.7	78.7	13.8	7.6

TABLE 10.—Marriages Classified by Number in Order and

County	Total marriages	Number of marriage				Groom			
		First of both parties	First of groom only	First of bride only	Second or over of both	Single	Wid-owed	Di-vorced	Single
CALIFORNIA	31,276	22,811	3,422	2,387	2,656	26,233	2,602	2,441	25,19~
Alameda	2,821	2,074	304	234	209	2,378	217	226	2,308
Alpine	2	1	1			2			1
Amador	62	44	10	7	1	54	3	5	51
Butte	252	177	29	17	29	201	26	20	194
Calaveras	35	29	2	2	2	31	3	1	31
Colusa	32	25	2	2	3	27	2	3	27
Contra Costa	210	161	21	13	15	182	16	12	174
Del Norte	21	14	5		2	19	1	1	14
El Dorado	44	32	5	2	5	37	4	3	34
Fresno	973	763	79	67	64	842	69	62	839
Glenn	65	52	7	5	2	59	3	4	57
Humboldt	329	279	16	14	20	295	14	20	293
Imperial	154	116	19	12	7	135	11	8	128
Inyo	26	12	5	5	4	17	6	3	17
Kern	464	344	56	37	27	400	31	33	381
Kings	239	188	22	12	17	210	13	16	200
Lake	37	26	2	3	6	28	4	5	29
Lassen	37	26	3	5	3	29	5	3	31
Los Angeles	7,490	5,352	794	602	742	6,146	765	579	5,954
Madera	93	66	11	10	6	77	7	9	76
Marin	1,294	818	224	116	136	1,042	107	145	934
Mariposa	8	7	1			8			7
Mendocino	193	149	15	13	16	164	19	10	162
Merced	138	101	18	7	12	119	16	3	108
Modoc	58	46	2	6	4	48	6	4	52
Mono	6	5	1			6			5
Monterey	202	149	22	12	19	171	17	14	167
Napa	159	115	19	10	15	134	13	12	125
Nevada	91	64	14	5	8	78	8	5	69
Orange	1,290	817	190	106	177	1,007	136	147	923
Placer	111	84	8	11	8	92	11	8	95
Plumas	25	20	3	1	1	23	1	1	21
Riverside	448	320	45	35	48	335	42	41	355
Sacramento	1,142	765	162	107	108	927	98	117	872
San Benito	76	62	6	1	7	68	5	3	63
San Bernardino	650	415	83	58	64	528	79	43	508
San Diego	1,134	775	121	117	121	896	124	114	892
San Francisco	6,102	4,810	572	388	332	5,382	357	363	5,196
San Joaquin	620	443	76	40	61	519	47	54	483
San Luis Obispo	185	137	16	15	17	153	16	16	152
San Mateo	385	252	61	30	42	313	30	42	282
Santa Barbara	297	204	35	29	29	239	30	28	233
Santa Clara	1,064	714	108	79	103	822	74	108	793
Santa Cruz	270	195	31	19	25	226	24	20	214
Shasta	121	95	9	9	8	104	7	10	104
Sierra	11	10			1	10		1	10
Siskiyou	143	110	19	10	4	129	6	8	120
Solano	164	123	24	7	10	147	8	9	130
Sonoma	427	318	44	30	35	302	35	30	348
Stanislaus	239	185	27	13	14	212	14	13	198
Sutter	28	25		1	2	25	2	1	26
Tehama	106	88	6	4	8	94	8	4	92
Trinity	10	8	2			10			8
Tulare	324	252	23	29	20	275	27	22	281
Tuolumne	50	36	6	4	4	42	3	5	40
Ventura	214	162	23	15	14	185	14	15	177
Yolo	93	72	7	6	8	79	10	4	78
Yuba	71	49	6	5	11	56	8	8	54

Marital Condition of Parties, with Per Cents, for Counties: 1912.

Bride		Per cent of marriages				Per cent of grooms			Per cent of brides		
Wid- owed	Di- vorced	First of both parties	First of groom only	First of bride only	Second or over of both	Single	Wid- owed	Di- vorced	Single	Wid- owed	Di- vorced
3,014	3,064	72.9	11.0	7.6	8.5	83.9	8.3	7.8	80.6	9.6	9.8
247	266	73.5	10.8	8.3	7.4	84.3	7.7	8.0	81.8	8.8	9.4
	1	50.0	50.0			100.0			50.0		50.0
9	2	71.0	16.1	11.3	1.6	87.1	4.8	8.1	82.3	14.5	3.2
26	32	70.2	11.5	6.8	11.5	81.8	10.3	7.9	77.0	10.3	12.7
2	2	82.9	5.7	5.7	5.7	88.6	8.6	2.8	88.6	5.7	5.7
1	4	78.1	6.3	6.2	9.4	84.4	6.2	9.4	84.4	3.1	12.5
12	24	76.7	10.0	6.2	7.1	86.7	7.6	5.7	82.9	5.7	11.4
5	2	66.7	23.8		9.5	90.5	4.8	4.7	66.7	23.8	9.5
7	3	72.7	11.4	4.5	11.4	84.1	9.1	6.8	77.3	15.9	6.8
77	66	78.4	8.1	6.9	6.6	86.5	7.1	6.4	85.3	7.9	6.8
5	4	78.8	10.6	7.6	3.0	89.4	4.5	6.1	83.4	7.6	6.0
18	18	84.8	4.9	4.2	6.1	89.7	4.2	6.1	89.0	5.5	5.5
14	12	75.8	12.3	7.8	4.6	87.7	7.1	5.2	83.1	9.1	7.8
3	6	46.2	19.2	19.2	15.4	65.4	23.1	11.5	65.4	11.5	23.1
37	46	74.1	12.1	8.0	5.8	86.2	6.7	7.1	82.1	8.0	9.9
14	25	78.7	9.2	5.0	7.1	87.9	5.4	6.7	83.7	5.8	10.5
3	5	70.3	5.4	8.1	16.2	75.7	10.8	13.5	78.4	8.1	13.5
2	4	70.3	8.1	13.5	8.1	78.4	13.5	8.1	83.8	5.4	10.8
855	681	71.5	10.6	8.0	9.9	82.1	10.2	7.7	79.5	11.4	9.1
5	12	71.0	11.8	10.8	6.4	82.8	7.5	9.7	81.7	5.4	12.9
144	216	63.2	17.3	9.0	10.5	80.5	8.3	11.2	72.2	11.1	16.7
	1	87.5	12.5			100.0			87.5		12.5
20	11	77.2	7.8	6.7	8.3	85.0	9.8	5.2	83.9	10.4	5.7
16	14	73.2	13.0	5.1	8.7	86.2	11.6	2.2	78.3	11.6	10.1
2	4	79.3	8.5	10.3	6.9	82.8	10.3	6.9	89.7	3.4	6.9
	1	83.3	16.7			100.0			83.3		16.7
25	15	73.8	10.9	5.9	9.4	84.7	8.4	6.9	79.7	12.9	7.4
22	12	72.3	12.0	6.3	9.4	84.3	8.2	7.5	78.6	13.8	7.6
11	11	70.3	15.4	5.5	8.8	85.7	8.8	5.5	75.8	12.1	12.1
174	193	63.4	14.7	8.2	13.7	78.1	10.5	11.4	71.5	13.5	15.0
8	8	75.7	7.2	9.9	7.2	82.9	9.9	7.2	85.6	7.2	7.2
3	1	80.0	12.0	4.0	4.0	92.0	4.0	4.0	84.0	12.0	4.0
47	46	71.4	10.1	7.8	10.7	81.5	9.4	9.1	79.2	10.5	10.3
128	144	67.0	14.2	9.4	9.4	81.2	8.6	10.2	76.4	11.0	12.6
9	4	81.6	7.9	1.3	9.2	89.5	6.6	3.9	82.9	11.8	5.3
87	60	68.5	12.8	8.9	9.8	81.2	12.2	6.6	77.4	13.4	9.2
121	121	68.3	10.7	10.3	10.7	79.0	10.9	10.1	78.6	10.7	10.7
402	502	78.8	9.4	6.4	5.4	88.2	5.9	5.9	85.2	6.6	8.2
63	74	71.5	12.3	6.4	9.8	83.7	7.6	8.7	77.9	10.2	11.9
16	17	74.1	8.6	8.1	9.2	82.7	8.7	8.6	82.2	8.6	9.2
35	68	65.5	15.8	7.8	10.9	81.3	7.8	10.9	73.2	9.1	17.7
34	30	68.7	11.8	9.8	9.7	80.5	10.1	9.4	78.5	11.4	10.1
103	108	71.1	10.7	7.9	10.3	81.9	7.4	10.7	79.0	10.3	10.7
29	27	72.2	11.5	7.0	9.3	83.7	8.9	7.4	79.3	10.7	10.0
7	10	78.5	7.5	7.4	6.6	85.9	5.8	8.3	85.9	5.8	8.3
	1	90.9				91.0			91.0		9.1
8	15	76.9	13.3	7.0	2.8	90.2	4.2	5.6	83.9	5.6	10.5
17	17	75.0	14.6	4.3	6.1	89.6	4.9	5.5	79.3	10.4	10.3
41	38	74.5	10.3	7.0	8.2	84.8	8.2	7.0	81.5	9.6	8.9
25	16	77.4	11.3	5.4	5.9	88.7	5.9	5.4	82.8	10.5	6.7
2		89.3		3.6	7.1	89.3	7.1	3.6	92.9	7.1	
5	9	83.0	5.7	3.8	7.5	88.7	7.5	3.8	86.8	4.7	8.5
1	1	80.0	20.0			100.0			80.0	10.0	10.0
27	16	77.8	7.1	8.9	6.2	84.9	8.3	6.8	86.7	8.3	5.0
3	7	72.0	12.0	8.0	8.0	84.0	6.0	10.0	80.0	6.0	14.0
30	17	75.7	10.8	7.0	6.5	86.5	6.5	7.0	82.7	9.3	8.0
10	5	77.4	7.5	6.5	8.6	84.9	10.8	4.3	83.9	10.7	5.4
2	9	69.0	8.5	7.0	15.5	77.5	11.3	11.2	76.0	11.3	12.7

TABLE 11.—Brides Classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1913.

Geographic division and race or nativity of bride	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
THE STATE	31,383	24,923	3,181	3,239	79.6	10.1	10.3
White	30,089	23,833	3,070	3,186	79.3	10.2	10.5
Born in California	10,804	9,209	638	967	85.2	5.9	8.9
Born in other states	13,271	9,856	1,634	1,781	74.3	12.3	13.4
Foreign born	6,014	4,788	798	428	79.6	13.3	7.1
Non-caucasian	1,294	1,110	111	73	85.8	8.6	5.6
Northern California	2,287	1,831	231	225	80.1	10.1	9.8
White	2,244	1,800	224	220	80.2	10.0	9.8
Born in California	1,222	1,131	68	83	88.2	5.3	6.5
Born in other states	639	429	102	106	67.1	16.0	16.9
Foreign born	323	240	54	29	74.3	16.7	9.0
Non-caucasian	43	31	7	5	72.1	16.3	11.6
Coast counties	1,131	917	112	102	81.1	9.9	9.0
White	1,113	904	108	101	81.2	9.7	9.1
Born in California	647	570	37	40	88.1	5.7	6.2
Born in other states	241	161	35	45	66.8	14.5	18.7
Foreign born	225	173	30	16	76.9	16.0	7.1
Non-caucasian	18	13	4	1	72.2	22.2	5.6
Interior counties	1,156	914	119	123	79.1	10.3	10.6
White	1,131	896	116	119	79.2	10.3	10.5
Born in California	635	561	31	43	88.3	4.9	6.8
Born in other states	308	208	67	63	67.4	16.8	15.8
Foreign born	98	67	18	13	68.4	18.4	13.2
Non-caucasian	25	18	3	4	72.0	12.0	16.0
Central California	16,947	13,628	1,504	1,815	80.4	8.9	10.7
White	16,049	12,801	1,465	1,738	79.8	9.1	11.1
Born in California	7,278	6,145	432	701	84.4	6.0	9.6
Born in other states	5,118	3,706	606	807	72.4	11.8	15.8
Foreign born	3,653	2,950	428	275	80.8	11.7	7.5
Non-caucasian	898	827	39	32	92.1	4.3	3.6
San Francisco	5,940	4,919	450	571	82.8	7.6	9.6
White	5,215	4,217	434	534	80.9	8.3	10.8
Born in California	2,214	1,870	121	223	84.4	5.5	10.1
Born in other states	1,355	939	147	239	71.5	10.9	17.6
Foreign born	1,646	1,378	166	102	83.7	10.1	6.2
Non-caucasian	725	702	10	7	96.8	2.2	1.0
Other bay counties	4,583	3,597	437	549	78.5	9.5	12.0
White	4,490	3,528	428	534	78.6	9.5	11.9
Born in California	2,152	1,824	134	194	84.8	6.2	9.0
Born in other states	1,431	1,027	163	241	71.8	11.4	16.8
Foreign born	907	677	131	99	74.6	14.5	10.9
Non-caucasian	93	69	9	15	74.2	9.7	16.1
Coast counties	1,681	1,351	150	180	80.4	8.9	10.7
White	1,606	1,338	149	179	80.3	8.9	10.8
Born in California	848	732	41	75	86.3	4.8	8.9
Born in other states	513	365	68	80	71.1	13.3	15.6
Foreign born	305	241	40	24	79.0	13.1	7.9
Non-caucasian	15	13	1	1	86.7	6.7	6.6
Interior counties	4,743	3,761	467	515	79.3	9.8	10.9
White	4,678	3,718	454	506	79.5	9.7	10.8
Born in California	2,064	1,719	136	209	83.3	6.6	10.1
Born in other states	1,819	1,345	227	247	73.9	12.5	13.6
Foreign born	795	654	91	50	82.3	11.4	6.3
Non-caucasian	65	43	13	9	66.2	20.0	13.8

TABLE 11—Continued.

Geographic division and race or nativity of bride	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
Southern California	12,149	9,504	1,446	1,199	78.2	11.9	9.9
White	11,796	9,252	1,381	1,163	78.4	11.7	9.9
Born in California	2,244	1,933	138	173	83.1	6.2	7.7
Born in other states	7,514	5,721	927	863	76.2	12.3	11.5
Foreign born	2,088	1,596	316	124	78.4	15.5	6.1
Non-caucasian	353	252	65	36	71.4	18.4	10.2
Los Angeles	7,584	6,008	870	711	79.1	11.5	9.4
White	7,352	5,837	826	680	79.4	11.2	9.4
Born in California	1,240	1,078	62	100	83.9	5.0	8.1
Born in other states	4,753	3,679	562	512	77.4	11.8	10.8
Foreign born	1,350	1,080	202	77	79.5	14.8	5.7
Non-caucasian	232	166	44	22	71.5	19.0	9.5
Other counties	4,565	3,501	576	488	70.7	12.6	10.7
White	4,444	3,415	555	474	76.8	12.5	10.7
Born in California	1,004	855	76	73	85.1	7.6	7.3
Born in other states	2,761	2,042	365	354	74.0	13.2	12.8
Foreign born	679	518	114	47	76.3	16.8	6.9
Non-caucasian	121	86	21	14	71.1	17.3	11.6
Northern and Central California	19,234	15,459	1,735	2,040	80.4	9.0	10.4
White	18,293	14,601	1,680	2,003	79.8	9.2	11.0
Born in California	8,560	7,276	500	784	85.0	5.8	9.2
Born in other states	5,756	4,135	707	915	71.8	12.3	15.9
Foreign born	3,976	3,190	482	304	80.2	12.1	7.7
Non-caucasian	941	858	46	37	91.2	4.9	3.9
Coast counties	13,335	10,784	1,149	1,402	80.9	8.6	10.5
White	12,484	9,967	1,119	1,378	80.0	9.0	11.0
Born in California	5,961	4,993	333	532	85.2	5.7	9.1
Born in other states	3,540	2,522	413	635	71.2	11.7	17.1
Foreign born	3,083	2,469	373	241	80.1	12.1	7.8
Non-caucasian	851	797	30	24	93.7	3.5	2.8
Interior counties	5,899	4,675	586	638	79.3	9.9	10.8
White	5,809	4,614	570	625	79.4	9.8	10.8
Born in California	2,699	2,280	167	252	84.5	6.2	9.3
Born in other states	2,217	1,613	294	310	72.7	13.3	14.0
Foreign born	893	721	109	63	80.7	12.2	7.1
Non-caucasian	90	61	16	13	67.8	17.8	14.4
Metropolitan area	10,523	8,516	887	1,120	80.9	8.4	10.7
White	9,705	7,745	832	1,098	79.8	8.9	11.3
Born in California	4,336	3,604	255	417	84.6	5.8	9.6
Born in other states	2,786	1,996	310	480	71.7	11.1	17.2
Foreign born	2,553	2,065	297	201	80.5	11.6	7.9
Non-caucasian	818	771	25	22	94.2	3.1	2.7
Rural counties	8,711	6,943	848	920	79.7	9.7	10.6
White	8,588	6,826	827	905	79.8	9.6	10.6
Born in California	4,194	3,582	245	357	85.4	5.8	8.8
Born in other states	2,971	2,139	397	435	72.0	13.4	14.6
Foreign born	1,423	1,135	185	163	79.8	13.0	7.2
Non-caucasian	123	87	21	15	70.7	17.1	12.2

TABLE 12.—Brides Classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1912.

Geographic division and race or nativity of bride	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
THE STATE	31,276	25,198	3,014	3,064	80.6	9.6	9.8
White	29,832	23,931	2,916	2,985	80.2	9.8	10.0
Born in California	11,203	9,617	652	934	85.9	5.8	8.3
Born in other states	12,713	9,529	1,514	1,670	75.0	11.9	13.1
Foreign born	5,916	4,785	750	881	80.9	12.7	6.4
Non-caucasian	1,444	1,267	98	79	87.7	6.8	5.5
Northern California	2,328	1,931	198	199	83.0	8.5	8.6
White	2,277	1,888	194	195	82.9	8.5	8.6
Born in California	1,308	1,156	65	87	88.4	5.0	6.6
Born in other states	670	485	92	93	72.4	13.7	13.9
Foreign born	299	247	37	15	82.6	12.4	5.0
Non-caucasian	51	43	4	4	84.3	7.9	7.8
Coast counties	1,176	979	110	87	83.2	9.4	7.4
White	1,153	960	107	86	83.3	9.3	7.4
Born in California	649	575	34	40	88.6	5.2	6.2
Born in other states	287	199	51	37	69.3	17.8	12.9
Foreign born	217	186	22	9	85.7	10.1	4.2
Non-caucasian	23	19	3	1	82.6	13.0	4.4
Interior counties	1,152	952	88	112	82.7	7.6	9.7
White	1,124	928	87	109	82.6	7.7	9.7
Born in California	659	581	31	47	88.2	4.7	7.1
Born in other states	383	286	41	56	74.7	10.7	14.6
Foreign born	82	61	15	6	74.4	18.3	7.3
Non-caucasian	28	24	1	3	85.7	3.6	10.7
Central California	17,271	14,102	1,464	1,705	81.6	8.5	9.9
White	16,215	13,098	1,435	1,682	80.8	8.8	10.4
Born in California	7,609	6,508	463	698	84.9	6.0	9.1
Born in other states	4,840	3,559	542	739	73.5	11.2	15.3
Foreign born	3,766	3,031	430	245	81.8	11.6	6.6
Non-caucasian	1,056	1,004	29	23	95.1	2.7	2.2
San Francisco	6,102	5,198	402	502	85.2	6.6	8.2
White	5,195	4,309	390	496	82.9	7.5	9.6
Born in California	2,298	1,947	125	196	85.9	5.5	8.6
Born in other states	1,254	922	122	210	73.5	9.7	16.8
Foreign born	1,673	1,440	143	90	86.1	8.5	5.4
Non-caucasian	907	880	12	6	98.0	1.3	0.7
Other bay counties	4,710	3,698	438	574	78.5	9.3	12.2
White	4,633	3,640	429	564	78.6	9.2	12.2
Born in California	2,327	1,942	133	252	83.5	5.7	10.8
Born in other states	1,362	984	151	227	72.2	11.1	16.7
Foreign born	944	714	145	85	75.6	15.4	9.0
Non-caucasian	77	58	9	10	75.3	11.7	13.0
Coast counties	1,737	1,383	183	171	79.6	10.5	9.9
White	1,721	1,371	180	170	79.7	10.4	9.9
Born in California	967	797	62	78	85.1	6.6	8.3
Born in other states	460	324	68	68	70.4	14.8	14.8
Foreign born	324	250	50	24	77.2	15.4	7.4
Non-caucasian	16	12	3	1	75.0	18.8	6.2
Interior counties	4,722	3,823	441	458	81.0	9.3	9.7
White	4,666	3,778	436	452	81.0	9.3	9.7
Born in California	2,137	1,822	143	172	85.3	6.7	8.0
Born in other states	1,764	1,329	201	234	75.3	11.4	13.3
Foreign born	765	627	92	46	82.0	12.0	6.0
Non-caucasian	56	45	5	6	80.4	8.9	10.7

TABLE 12—Continued.

Geographic division and race or nativity of bride	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
<i>Southern California</i> -----	11,677	9,165	1,352	1,160	78.5	11.6	9.9
White -----	11,340	8,945	1,287	1,108	78.9	11.3	9.8
Born in California -----	2,226	1,953	124	149	87.7	5.6	6.7
Born in other states -----	7,203	5,486	880	838	76.2	12.2	11.6
Foreign born -----	1,911	1,507	283	121	78.9	14.8	6.3
Non-caucasian -----	337	220	65	52	65.3	19.3	15.4
Los Angeles -----	7,490	5,954	855	681	79.5	11.4	9.1
White -----	7,249	5,797	805	647	80.0	11.1	8.9
Born in California -----	1,281	1,128	64	89	88.1	5.0	6.9
Born in other states -----	4,626	3,604	543	479	77.9	11.7	10.4
Foreign born -----	1,342	1,035	198	79	79.4	14.7	5.9
Non-caucasian -----	241	157	50	34	65.1	20.8	14.1
Other counties -----	4,187	3,211	497	479	76.7	11.9	11.4
White -----	4,091	3,148	482	461	76.9	11.8	11.3
Born in California -----	945	825	60	60	87.3	6.4	6.3
Born in other states -----	2,577	1,881	337	359	73.0	13.1	13.9
Foreign born -----	599	442	85	42	77.7	14.9	7.4
Non-caucasian -----	93	63	15	18	65.6	15.6	18.8
<i>Northern and Central California</i> -----	19,599	16,033	1,662	1,904	81.8	8.5	9.7
White -----	18,492	14,966	1,629	1,877	81.0	8.8	10.2
Born in California -----	8,977	7,664	528	785	85.4	5.9	8.7
Born in other states -----	5,510	4,044	634	832	73.4	11.5	15.1
Foreign born -----	4,005	3,278	467	260	81.8	11.7	6.5
Non-caucasian -----	1,107	1,047	33	27	94.6	3.0	2.4
Coast counties -----	13,725	11,258	1,133	1,334	82.0	8.3	9.7
White -----	12,702	10,280	1,106	1,316	80.9	8.7	10.4
Born in California -----	6,181	5,261	354	566	85.1	5.7	9.2
Born in other states -----	3,363	2,429	392	542	72.2	11.7	16.1
Foreign born -----	3,158	2,590	360	208	82.0	11.4	6.6
Non-caucasian -----	1,023	978	27	18	95.6	2.6	1.8
Interior counties -----	5,874	4,775	529	570	81.3	9.0	9.7
White -----	5,790	4,706	523	561	81.3	9.0	9.7
Born in California -----	2,796	2,403	174	219	86.0	6.2	7.8
Born in other states -----	2,147	1,615	242	290	75.2	11.3	13.5
Foreign born -----	847	688	107	52	81.2	12.6	6.2
Non-caucasian -----	84	69	6	9	82.2	7.1	10.7
Metropolitan area -----	10,812	8,893	849	1,076	82.3	7.8	9.9
White -----	9,828	7,949	819	1,030	80.9	8.3	10.8
Born in California -----	4,595	3,889	258	448	84.6	5.6	9.8
Born in other states -----	2,616	1,906	273	437	72.9	10.4	16.7
Foreign born -----	2,617	2,154	288	175	82.3	11.0	6.7
Non-caucasian -----	984	947	21	16	96.3	2.1	1.6
Rural counties -----	8,787	7,137	822	828	81.2	9.4	9.4
White -----	8,664	7,037	810	817	81.2	9.4	9.4
Born in California -----	4,382	3,775	270	337	83.1	6.2	7.7
Born in other states -----	2,894	2,138	361	395	73.9	12.5	13.6
Foreign born -----	1,388	1,124	179	85	81.0	12.9	6.1
Non-caucasian -----	123	100	12	11	81.3	9.8	8.9

TABLE 13.—White Brides Classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1913.

Geographic division and marital condition of bride	White brides				Per cent		
	Total	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
THE STATE	30,069	10,804	13,271	6,014	35.9	44.1	20.0
Single.....	23,853	9,209	9,856	4,788	38.6	41.3	20.1
Widowed.....	3,070	638	1,634	798	20.8	53.2	26.0
Divorced.....	3,166	957	1,781	428	30.2	56.3	13.5
Northern California	2,244	1,282	639	323	57.1	28.5	14.4
Single.....	1,800	1,131	429	240	62.8	23.9	13.3
Widowed.....	224	68	102	54	30.4	45.5	24.1
Divorced.....	220	83	108	29	37.7	49.1	13.2
Coast counties.....	1,113	647	241	225	58.1	21.7	20.2
Single.....	904	570	161	173	63.1	17.8	19.1
Widowed.....	108	37	35	36	34.3	32.4	33.3
Divorced.....	101	40	45	16	39.6	44.6	15.8
Interior counties.....	1,131	635	398	98	56.1	35.2	8.7
Single.....	886	561	268	67	62.6	29.9	7.5
Widowed.....	116	31	67	18	26.7	57.8	15.5
Divorced.....	119	43	63	13	36.1	53.0	10.9
Central California	16,049	7,278	5,118	3,653	45.3	31.9	22.8
Single.....	12,801	6,145	3,706	2,950	48.0	29.0	23.0
Widowed.....	1,465	432	605	428	29.5	41.3	29.2
Divorced.....	1,783	701	807	275	39.3	45.3	15.4
San Francisco.....	5,215	2,214	1,355	1,646	42.4	26.0	31.6
Single.....	4,217	1,870	909	1,378	44.3	23.0	32.7
Widowed.....	434	121	147	166	27.9	33.9	38.2
Divorced.....	564	223	239	102	39.5	42.4	18.1
Other bay counties.....	4,400	2,152	1,431	907	47.9	31.9	20.2
Single.....	3,528	1,824	1,027	677	51.7	29.1	19.2
Widowed.....	428	134	163	131	31.3	38.1	30.6
Divorced.....	534	194	241	99	36.3	45.1	18.6
Coast counties.....	1,666	848	513	305	50.9	30.8	18.3
Single.....	1,338	732	365	241	54.7	27.3	18.0
Widowed.....	149	41	68	40	27.5	45.6	26.9
Divorced.....	179	75	80	24	41.9	44.7	13.4
Interior counties.....	4,678	2,064	1,819	795	44.1	38.9	17.0
Single.....	3,718	1,719	1,345	654	46.2	36.2	17.6
Widowed.....	454	136	227	91	30.0	50.0	20.0
Divorced.....	506	209	247	50	41.3	48.8	9.9
Southern California	11,796	2,244	7,514	2,038	19.0	63.7	17.3
Single.....	9,232	1,933	5,721	1,508	20.9	61.8	17.3
Widowed.....	1,381	138	927	316	10.0	67.1	22.9
Divorced.....	1,163	173	866	124	14.9	74.6	10.7
Los Angeles.....	7,332	1,240	4,753	1,339	16.9	64.6	18.5
Single.....	5,837	1,078	3,679	1,080	18.5	63.0	18.5
Widowed.....	826	62	562	202	7.5	68.0	24.5
Divorced.....	689	100	512	77	14.5	74.3	11.2
Other counties.....	4,444	1,004	2,761	679	22.6	62.1	15.3
Single.....	3,415	855	2,042	518	25.0	59.8	15.2
Widowed.....	555	76	365	114	13.7	65.8	20.5
Divorced.....	474	73	354	47	15.4	74.7	9.9
Northern and Central California	18,293	8,560	5,756	3,976	46.8	31.5	21.7
Single.....	14,601	7,276	4,135	3,190	49.8	28.3	21.9
Widowed.....	1,689	500	707	482	29.6	41.9	28.5
Divorced.....	2,003	784	915	304	39.1	45.7	15.2
Coast counties.....	12,484	5,861	3,540	3,083	46.9	28.4	24.7
Single.....	9,987	4,906	2,522	2,469	50.0	25.3	24.7
Widowed.....	1,119	333	413	373	29.8	36.9	33.3
Divorced.....	1,378	532	605	241	38.6	43.9	17.5
Interior counties.....	5,809	2,699	2,217	893	46.4	38.2	15.4
Single.....	4,611	2,280	1,613	721	49.4	35.0	15.6
Widowed.....	570	167	294	109	29.3	51.6	19.1
Divorced.....	625	252	310	63	40.3	49.6	10.1
Metropolitan area.....	9,705	4,393	2,786	2,533	45.0	28.7	26.3
Single.....	7,745	3,604	1,906	2,055	47.7	25.8	26.5
Widowed.....	802	255	310	297	29.6	36.0	34.4
Divorced.....	1,098	417	480	201	38.0	43.7	18.3
Rural counties.....	8,588	4,194	2,971	1,423	48.8	34.6	16.6
Single.....	6,856	3,582	2,139	1,135	52.2	31.2	16.6
Widowed.....	897	245	397	185	29.6	48.0	22.4
Divorced.....	905	367	435	103	40.5	48.1	11.4

TABLE 14.—White Brides Classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1912.

Geographic division and marital condition of bride	White brides				Per cent		
	Total	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
THE STATE	29,832	11,208	12,713	5,916	37.6	42.6	19.8
Single.....	23,981	9,617	9,529	4,785	40.2	39.8	20.0
Widowed.....	2,916	652	1,514	750	22.4	51.9	25.7
Divorced.....	2,985	984	1,670	381	31.3	55.9	12.8
Northern California	2,277	1,308	670	299	57.5	29.4	13.1
Single.....	1,888	1,156	485	247	61.2	25.7	13.1
Widowed.....	194	65	92	37	33.5	47.4	19.1
Divorced.....	195	87	93	15	44.6	47.7	7.7
Coast counties.....	1,153	649	287	217	56.3	24.9	18.8
Single.....	900	575	199	186	59.9	20.7	19.4
Widowed.....	107	34	51	22	31.8	47.7	20.5
Divorced.....	86	40	37	9	46.5	43.0	10.5
Interior counties.....	1,124	659	383	82	58.6	34.1	7.3
Single.....	928	581	286	61	62.6	30.8	6.6
Widowed.....	87	31	41	15	35.6	47.1	17.3
Divorced.....	109	47	56	6	43.1	51.4	5.5
Central California	16,215	7,669	4,840	3,706	47.3	29.8	22.9
Single.....	13,098	6,508	3,569	3,031	49.7	27.2	23.1
Widowed.....	1,435	463	542	430	32.3	37.8	29.9
Divorced.....	1,682	698	739	245	41.5	43.9	14.6
San Francisco.....	5,195	2,268	1,254	1,673	43.7	24.1	32.2
Single.....	4,309	1,947	922	1,440	45.2	21.4	33.4
Widowed.....	390	125	122	143	32.0	31.3	36.7
Divorced.....	496	196	210	90	39.5	42.3	18.2
Other bay counties.....	4,633	2,327	1,362	944	50.2	29.4	20.4
Single.....	3,640	1,942	984	714	53.4	27.0	19.6
Widowed.....	429	133	151	145	31.0	35.2	33.8
Divorced.....	564	252	227	85	44.7	40.2	15.1
Coast counties.....	1,721	937	490	324	54.5	26.7	18.8
Single.....	1,371	797	324	250	58.1	23.6	18.3
Widowed.....	180	62	68	50	34.4	37.8	27.8
Divorced.....	170	78	68	24	45.9	40.0	14.1
Interior counties.....	4,666	2,137	1,764	765	45.8	37.8	16.4
Single.....	3,778	1,822	1,329	627	48.2	35.2	16.6
Widowed.....	436	143	201	92	32.8	46.1	21.1
Divorced.....	452	172	234	46	38.0	51.8	10.2
Southern California	11,340	2,226	7,203	1,911	19.6	63.5	16.9
Single.....	8,945	1,933	5,485	1,507	21.8	61.3	16.9
Widowed.....	1,287	124	880	283	9.6	68.4	22.0
Divorced.....	1,108	140	838	121	13.5	75.6	10.9
Los Angeles.....	7,249	1,281	4,626	1,342	17.7	63.8	18.5
Single.....	5,797	1,128	3,604	1,065	19.4	62.2	18.4
Widowed.....	805	64	543	198	7.9	67.5	24.6
Divorced.....	647	89	479	79	13.8	74.0	12.2
Other counties.....	4,091	945	2,577	569	23.1	63.0	13.9
Single.....	3,148	825	1,881	442	26.2	50.8	14.0
Widowed.....	492	60	337	85	12.5	60.9	17.6
Divorced.....	461	60	359	42	13.0	77.9	9.1
Northern and Central California	18,492	8,977	5,510	4,005	48.5	29.8	21.7
Single.....	14,965	7,664	4,044	3,278	51.1	27.0	21.9
Widowed.....	1,620	528	634	467	32.4	38.9	28.7
Divorced.....	1,877	785	832	290	41.8	44.3	13.9
Coast counties.....	12,702	6,181	3,343	3,158	48.6	23.5	24.9
Single.....	10,280	5,261	2,429	2,500	51.2	23.6	25.2
Widowed.....	1,106	354	392	360	32.0	35.4	36.0
Divorced.....	1,316	566	542	298	43.0	41.2	15.8
Interior counties.....	5,790	2,796	2,147	847	48.3	37.1	14.6
Single.....	4,708	2,403	1,615	688	51.1	34.3	14.6
Widowed.....	523	174	242	107	33.3	46.3	20.4
Divorced.....	561	219	290	52	39.0	51.7	9.3
Metropolitan area.....	9,828	4,505	2,616	2,617	46.8	26.6	26.6
Single.....	7,949	3,849	1,906	2,154	48.9	24.0	27.1
Widowed.....	819	258	273	288	31.5	33.3	35.2
Divorced.....	1,060	448	437	175	42.3	41.2	16.5
Rural counties.....	8,664	4,262	2,894	1,388	50.6	33.4	16.0
Single.....	7,037	3,775	2,138	1,124	53.6	30.4	16.0
Widowed.....	810	270	361	179	33.3	44.6	22.1
Divorced.....	817	337	396	85	41.3	48.3	10.4

TABLE 15.—Brides Classified by Race and Nativity, with Per Cent

County	Total brides, 1913						Total
	Total	White		Foreign born	Non-Caucasian		
		Total	Born in California			Born in other states	
CALIFORNIA.....	31,383	30,089	10,804	13,271	6,014	1,294	31,276
Alameda.....	2,874	2,795	1,280	938	577	79	2,821
Alpine.....							2
Amador.....	64	64	41	8	15		62
Butte.....	223	220	110	97	13	3	222
Calaveras.....	29	29	18	5	6		33
Colusa.....	34	34	20	12	2		32
Contra Costa.....	239	239	100	67	72		210
Del Norte.....	24	18	7	8	3	6	21
El Dorado.....	39	37	27	8	2	2	44
Fresno.....	964	938	277	433	228	16	973
Glenn.....	64	64	38	21	5		63
Humboldt.....	281	276	161	51	64	5	329
Imperial.....	205	190	24	137	29	15	154
Inyo.....	50	48	23	24	1	2	26
Kern.....	423	417	141	237	39	6	464
Kings.....	188	184	55	79	50	4	228
Lake.....	35	35	22	10	3		37
Lassen.....	36	35	23	12		1	37
Los Angeles.....	7,584	7,352	1,240	4,753	1,359	232	7,440
Madera.....	89	89	43	35	11		90
Marin.....	1,080	1,079	592	305	182	10	1,234
Mariposa.....	5	5	3	2			8
Mendocino.....	180	175	105	34	36	5	193
Merced.....	147	146	60	50	36	1	138
Modoc.....	53	50	31	16	3	3	56
Mono.....	2	2	1	1			6
Monterey.....	168	167	97	51	19	1	222
Napa.....	189	188	106	44	38	1	159
Nevada.....	76	76	51	13	12		91
Orange.....	1,359	1,343	264	916	163	16	1,290
Placer.....	89	88	52	21	15	1	111
Plumas.....	26	24	12	11	1	2	25
Riverside.....	415	402	87	252	63	13	448
Sacramento.....	1,142	1,125	568	361	176	17	1,142
San Benito.....	50	50	33	11	6		76
San Bernardino.....	680	651	150	401	100	29	650
San Diego.....	1,410	1,371	270	876	225	39	1,134
San Francisco.....	5,940	5,215	2,214	1,355	1,646	725	6,102
San Joaquin.....	692	685	373	214	98	7	620
San Luis Obispo.....	186	185	109	50	26	1	185
San Mateo.....	381	377	180	121	76	4	385
Santa Barbara.....	314	307	128	116	63	7	297
Santa Clara.....	1,024	1,014	485	335	194	10	1,004
Santa Cruz.....	253	250	124	66	60	3	270
Shasta.....	141	137	81	46	10	4	121
Sierra.....	11	11	7	4			11
Siskiyou.....	164	158	77	61	20	6	143
Solano.....	174	171	102	45	24	3	164
Sonoma.....	408	408	235	94	79		427
Stanislaus.....	230	228	82	90	45	4	239
Sutter.....	36	35	25	10		1	28
Tehama.....	109	108	52	51	5	1	106
Trinity.....	14	13	11		2	1	10
Tulare.....	340	339	121	172	46	1	324
Tuolumne.....	50	50	31	11	8		50
Ventura.....	182	180	81	63	36	2	214
Yolo.....	125	123	78	35	10	2	93
Yuba.....	94	91	56	23	12	3	71

Distribution of White Brides by Nativity, for Counties: 1913 and 1912.

Total brides, 1913					Per cent of white brides					
White					Born in California		Born in other states		Foreign born	
Total	Born in California	Born in other states	Foreign born	Non-Caucasian	1913	1912	1913	1912	1913	1912
29,882	11,208	12,713	5,916	1,444	35.9	37.6	44.1	42.6	20.0	19.8
2,753	1,324	847	582	68	45.8	48.1	33.0	30.8	20.6	21.1
2	2					100.0				
61	40	4	17	1	64.1	65.6	12.5	6.5	23.4	27.9
244	134	97	13	8	50.0	54.9	44.1	39.8	5.9	5.3
35	26	2	7		62.1	74.3	17.2	5.7	20.7	20.0
31	24	6	1	1	58.8	77.4	35.3	19.4	5.9	3.2
210	99	54	57		41.9	47.2	28.0	25.7	30.1	27.1
16	3	11	2	5	38.9	18.8	44.4	68.7	16.7	12.5
44	27	14	3		73.0	61.4	21.6	31.8	5.4	6.8
961	341	422	196	12	29.5	35.5	46.2	43.9	24.3	20.6
66	30	29	7		59.4	45.5	32.8	43.9	7.8	10.6
320	170	70	80	9	58.3	53.1	18.5	21.9	23.2	25.0
144	23	93	28	10	12.6	16.0	72.1	64.6	15.3	19.4
26	14	9	3		47.9	53.9	50.0	34.6	2.1	11.5
459	153	258	48	5	33.8	33.3	56.8	56.2	9.4	10.5
238	81	89	68	1	29.9	34.0	42.9	37.4	27.2	28.6
37	24	13			62.8	64.9	28.6	35.1	8.6	
37	26	8	3		65.7	70.3	34.3	21.6		8.1
7,249	1,281	4,026	1,342	241	16.9	17.7	64.6	63.8	18.5	18.5
98	48	30	15		48.3	51.6	39.3	32.3	12.4	16.1
1,288	708	352	228	6	54.8	55.0	28.3	27.3	16.9	17.7
8	5	3			60.0	62.5	40.0	37.5		
185	120	40	25	8	60.0	64.9	19.4	21.6	20.6	13.5
136	58	53	25	2	41.1	42.6	34.2	39.0	24.7	18.4
55	35	20		3	62.0	63.6	32.0	36.4	6.0	
6	5	1			50.0	83.3	50.0	16.7		
198	126	46	26	4	58.1	63.7	30.5	23.2	11.4	13.1
159	86	51	22		56.4	54.1	23.4	32.1	20.2	13.8
90	69	18	8	1	67.1	76.7	17.1	14.4	15.8	8.9
1,270	257	873	140	20	19.7	20.2	68.2	68.8	12.1	11.0
111	64	34	13		59.1	57.7	23.9	30.6	17.0	11.7
25	16	8	1		50.0	64.0	45.8	32.0	4.2	4.0
433	108	271	54	15	21.6	24.9	62.7	62.6	15.7	12.5
1,129	606	354	169	13	52.3	53.7	32.1	31.3	15.6	15.0
75	52	10	13	1	66.0	69.4	22.0	13.3	12.0	17.3
629	125	406	98	21	23.0	19.9	61.6	64.5	15.4	15.6
1,107	213	723	171	27	19.7	19.2	63.9	65.3	16.4	15.5
5,196	2,268	1,254	1,073	907	42.4	43.7	26.0	24.1	31.6	32.2
609	343	181	85	11	54.5	56.3	31.2	29.7	14.3	14.0
183	116	45	22	2	58.9	63.4	27.0	24.6	14.1	12.0
382	196	109	77	3	47.7	51.3	32.1	28.5	20.2	20.2
294	125	124	45	3	41.7	42.5	37.8	42.2	20.5	15.3
997	504	284	200	7	47.8	50.5	33.1	28.5	19.1	21.0
268	139	75	54	2	49.6	51.9	26.4	28.0	24.0	20.1
121	76	35	10		50.1	62.8	33.6	28.9	7.3	8.3
11	5	3	3		63.6	45.4	36.4	27.3		27.3
133	57	62	14	10	48.7	42.9	38.6	46.6	12.7	10.5
158	98	39	26	6	59.7	58.9	26.3	24.7	14.0	16.4
426	237	101	88	1	57.6	55.6	23.0	23.7	19.4	20.7
237	83	110	44	2	36.3	35.0	43.8	46.4	19.9	18.6
27	14	11	2	1	71.4	51.9	28.6	40.7		7.4
106	65	37	3	1	48.2	61.9	47.2	35.2	4.6	2.9
10	9	1			84.6	90.0		10.0	15.4	
824	124	161	39		35.7	38.3	50.7	49.7	13.6	12.0
50	29	9	12		62.0	58.0	22.0	18.0	16.8	24.0
214	94	87	33		45.0	43.9	35.0	40.7	20.0	15.4
90	59	25	6	3	63.4	65.5	28.5	27.8	8.1	6.7
68	44	20	4	3	61.5	64.7	25.3	29.4	13.2	5.9

Table 16.—Brides Classified by Race, Nativity

County	Single brides										Total	Total
	Total	White				Non-Caucasian						
		Total	Born in California	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese			
CALIFORNIA	24,968	23,858	9,209	9,856	4,788	322	52	35	701	3,181	3,070	
Alameda	2,330	2,272	1,116	708	448	45		6	7	269	290	
Alpine												
Amador	50	50	33	5	12					8	8	
Butte	180	179	98	70	11	1				20	20	
Calaveras	20	20	15	2	3					4	4	
Colusa	31	31	20	10	1					1	1	
Contra Costa	193	193	84	49	60					20	20	
Del Norte	21	16	7	6	3		5			1		
El Dorado	33	32	24	6	2		1			4	3	
Fresno	790	778	238	347	198	7	2	1	2	94	22	
Glenn	55	55	36	18	1					6	6	
Humboldt	251	246	148	39	59		5			17	17	
Imperial	174	164	22	116	26	10				13	12	
Inyo	41	39	19	19	1	1	1			6	6	
Kern	331	328	119	176	33	1		1	1	47	45	
Kings	162	159	46	65	48			1	2	15	15	
Lake	29	29	20	8	1					4	4	
Lassen	28	27	21	6			1			3	3	
Los Angeles	6,003	5,837	1,078	3,679	1,080	155		2	9	870	826	
Madera	69	69	35	26	8					7	7	
Marin	791	784	476	192	116	7				117	117	
Mariposa	5	5	3	2								
Mendocino	140	138	80	22	27		2			22	20	
Merced	122	122	52	37	33					14	14	
Modoc	42	40	27	11	2		2			8	8	
Mono	1	1	1							1	1	
Monterey	136	135	84	38	13				1	13	13	
Napa	153	152	93	29	30	1				19	19	
Nevada	67	67	45	11	11					5	5	
Orange	997	996	218	653	115	11				181	179	
Placer	76	75	47	18	10				1	5	5	
Plumas	17	16	8	8					1	3	2	
Riverside	317	307	71	188	48	3	7			56	53	
Sacramento	833	820	453	229	138	6	2		5	123	120	
San Benito	42	42	31	7	4					5	5	
San Bernardino	542	522	135	306	82	10	9	1		87	80	
San Diego	1,066	1,040	225	644	171	20	5	1		192	184	
San Francisco	4,919	4,217	1,870	969	1,378	21	1	17	663	450	434	
San Joaquin	535	532	308	149	75	3				71	68	
San Luis Obispo	153	152	96	33	23			1		17	17	
San Mateo	283	279	148	78	53	3		1		31	31	
Santa Barbara	251	244	109	90	45	5	1		1	31	31	
Santa Clara	828	820	418	244	158	3		2	3	88	87	
Santa Cruz	192	189	103	43	43				3	27	27	
Shasta	105	101	69	23	9	1	3			18	18	
Sierra	8	8	5	3						1	1	
Siskiyou	121	116	65	36	15		5			14	14	
Solano	149	146	96	32	18	3				13	13	
Sonoma	312	312	203	57	52					46	46	
Stanislaus	196	195	73	87	35	1				14	12	
Sutter	28	28	22	6						4	3	
Tehama	82	81	47	32	2			1		18	18	
Trinity	11	11	10		1					3	2	
Tulare	287	286	111	132	43	1				25	25	
Tuolumne	45	45	29	10	6					5	5	
Ventura	154	152	75	46	31				2	16	16	
Yolo	92	91	64	21	6	1				16	16	
Yuba	74	72	51	16	5	2				13	12	

and Marital Condition, for Counties: 1913.

Widowed brides							Divorced brides								
White			Non-Caucasian				Total	White				Non-Caucasian			
Born in California	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese		Total	Born in California	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese
638	1,634	798	83	11	6	11	3,239	3,166	957	1,781	428	59	7	1	6
75	99	86	7	1	1		275	263	89	131	43	12			
4	1	3					6	6	4	2					
7	13						23	21	5	14	2	2			
2		2					5	5	1	3	1				
	1						2	2		1	1				
6	9	5					26	26	10	9	7				
				1			2	2		2					
2	1		1				2	2	1	1					
17	45	30		1		1	70	68	22	41	5	1			1
1	2	3					3	3	1	1	1				
7	7	3					18	13	6	5	2				
1	8	3	1				18	14	1	13		4			
2	4						3	3	2	1					
8	34	3	2				45	44	14	27	3	1			
3	10	2					11	10	6	4		1			
2	1	1					2	2		1	1				
	3						5	5	2	3					
62	562	202	42			2	711	689	100	512	77	19			3
4	2	1					13	13	4	7	2				
42	45	30					181	178	74	68	36	3			
5	8	7		2			18	17	11	4	2		1		
3	8	3					11	10	5	5		1			
3	4	1					3	2	1	1			1		
	1														
4	5	4					19	19	9	8	2				
7	5	7					17	17	6	10	1				
3	1	1					4	4	3	1					
26	117	36	2				181	178	20	146	12	2	1		
1	1	3					8	8	4	2	2				
1	1			1			6	6	3	2	1				
9	36	9	3				42	42	7	29	6				
47	54	19	2			1	186	185	83	78	19	1			
	3	2					3	3	2	1					
8	57	15	6	1			51	49	7	39	3		2		
19	130	35	5	3			152	147	26	102	19	5			
121	147	166	5		5	6	571	564	223	239	102	5		1	1
26	30	12	2			1	86	85	39	35	11	1			
6	10	1					16	16	7	7	2				
11	10	10					67	67	21	33	13				
10	10	11					32	32	9	16	7				
24	42	21	1				108	107	43	49	15				1
7	8	12					34	34	14	15	5				
6	11	1					18	18	6	12					
	1						2	2	2						
3	8	3					29	28	9	17	2		1		
4	8	1					12	12	2	5	5				
15	14	17					50	50	17	23	10				
3	1	8	2				20	19	6	11	2	1			
	3		1				4	4	3	1					
3	12	3					9	9	2	7					
1		1		1											
3	20	2					28	28	7	20	1				
2	1	2													
3	8	5					12	12	3	9					
6	7	3					17	16	8	7	1		1		
3	6	3	1				7	7	2	1	4				

TABLE 17.—Brides Classified by Race, Nativity

County	Single brides										Total	Total
	Total	Total	White			Non-Caucasian						
			Born in California	Born in other	Foreign born	Negro	Indian	Chinese	Japanese			
CALIFORNIA	23,198	23,931	9,617	9,529	4,785	283	57	34	893	3,014	2,947	
Alameda	2,306	2,257	1,149	649	459	40		6	5	247	247	
Alpine	1	1	1									
Amador	51	50	36	1	13		1			9	9	
Butte	194	188	116	65	7	2	3		1	26	26	
Calaveras	31	31	24	1	6					2	2	
Colusa	27	26	19	6	1		1			1	1	
Contra Costa	174	174	85	40	49					12	12	
Del Norte	14	10	3	5	2		4			5	4	
El Dorado	34	34	23	9	2					7	7	
Fresno	830	820	306	344	170	4	2	1	3	77	77	
Glenn	57	57	28	24	5					5	5	
Humboldt	203	285	160	51	74		8			18	18	
Imperial	128	123	21	79	23	5				14	13	
Inyo	17	17	9	6	2					3	3	
Kern	381	376	126	212	38	5				37	37	
Kings	200	200	72	64	64					14	13	
Lake	29	29	22	7						3	3	
Lassen	31	31	25	4	2					2	2	
Los Angeles	5,064	5,797	1,128	3,604	1,065	141	1	4	11	855	455	
Madera	76	76	46	17	13					5	5	
Marin	934	980	557	222	151	4				144	144	
Mariposa	7	7	5	2								
Mendocino	102	156	103	31	22		6			20	18	
Merced	108	107	51	33	23	1				16	16	
Modoc	52	49	31	18			3			2	2	
Mono	5	5	4	1								
Monterey	161	158	107	31	20	2		1		26	26	
Napa	125	125	71	38	16					22	22	
Nevada	69	68	56	9	3			1		11	11	
Orange	923	912	219	563	97	10			1	174	171	
Placer	95	95	58	27	10					8	8	
Plumas	21	21	12	8	1					3	3	
Riverside	355	344	97	200	47	1	8		2	47	45	
Sacramento	872	859	485	244	130	7			6	126	126	
San Benito	63	62	44	7	11	1				9	9	
San Bernardino	503	490	109	312	69	8	5			87	83	
San Diego	892	871	192	539	140	19	2			121	117	
San Francisco	5,198	4,300	1,947	922	1,440	12	1	16	860	402	340	
San Joaquin	483	475	290	121	64	4		3	1	63	62	
San Luis Obispo	152	150	105	29	16	1		1		16	16	
San Mateo	282	279	151	73	55	3				35	35	
Santa Barbara	233	231	106	89	36	1	1			34	33	
Santa Clara	793	788	424	200	164	3		1	1	103	101	
Santa Cruz	214	213	117	57	39				1	29	28	
Shasta	104	104	70	26	8					7	7	
Sierra	10	10	4	3	3							
Siskiyou	120	111	53	44	14		9			8	8	
Solano	130	127	82	25	20	3				17	15	
Sonoma	348	347	208	67	72		1			41	41	
Stanislaus	198	196	67	93	36	2				25	25	
Sutter	26	25	13	10	2	1				2	2	
Tehama	92	91	59	30	2				1	5	5	
Trinity	8	8	8							1	1	
Tulare	281	281	116	132	33					27	27	
Tuolumne	40	40	25	7	8					3	3	
Ventura	177	177	81	66	30					20	20	
Yolo	78	76	54	17	5	1	1			10	10	
Yuba	54	52	37	12	3	2				8	8	

and Marital Condition, for Counties: 1912.

Widowed brides								Divorced brides							
White				Non-Caucasian				White				Non-Caucasian			
Born in California	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese	Total	Total	Born in California	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese
662	1,514	750	87	5	2	8	3,064	2,985	934	1,670	381	67	5	2	5
67	86	85	8			1	266	258	108	112	38	8			
							1	1	1						
	3	3					2	2	1		1				
8	13	4		1			32	31	10	19	2			1	
1		1					2	2	1	1					
1							4	4	4						
3	4	5					24	24	11	10	3				
	4	4		1			2	2		2					
4	2	1					3	3		3					
17	36	23	1				66	65	18	42	5	1			
1	3	1					4	4	1	2	1				
3	11	4					18	17	7	8	2		1		
	10	3	1				12	8	2	4	2	4			
1	2						6	6	4	1	1				
12	18	7					46	46	15	28	3				
2	7	4	1				25	25	7	18					
1	2						5	5	1	4					
1	1						4	4		3	1				
64	543	198	50				681	647	80	479	79	29	1		4
2	3						12	12		10	2				
48	50	46					216	214	108	80	31	2			
							1	1		1					
10	5	3		2			11	11	7	4					
2	12	2					14	13	5	8		1			
1	1						4	4	3	1					
							1	1	1						
12	11	3					15	14	7	4	3	1			
7	11	4					12	12	8	2	2				
6	1	4					11	11	7	3	1				
21	122	28	3				193	187	17	155	15	6			
1	4	3					8	8	5	3					
3							1	1	1						
4	35	6	2				46	44	7	36	1	2			
56	48	22					144	144	65	62	17				
6	1	2					4	4	2	2					
8	51	24	4				60	56	8	43	5	2	2		
11	80	17	3	1			121	119	10	95	14	2			
125	122	143	5		1	6	502	496	196	210	90	4		1	1
19	31	12				1	74	72	34	29	9	2			
5	7	4					17	17	6	9	2				
15	11	9					68	68	30	25	13				
9	18	6	1				30	30	10	17	3				
32	38	31	1		1		108	108	48	46	14				
7	11	10	1				27	27	15	7	5				
2	3	2					10	10	4	6					
							1	1	1						
3	5						15	14	1	13			1		
7	4	4	2				17	16	4	10	2	1			
13	17	11					38	38	16	17	5				
9	11	5					16	16	7	6	3				
1	1														
	5						9	9	6	2	1				
	1						1	1	1						
5	17	5					16	16	3	12	1				
		3					7	7	4	2	1				
7	12	1					17	17	6	9	2				
3	7						5	4	2	1	1	1			
3	4	1					9	8	4	4		1			

V. MORBIDITY REPORTS.

Smallpox.

During 1913, 803 cases of smallpox were reported in California. But 15 of these cases proved fatal, showing that the disease, generally, was of a mild character. The virulent form, however, appeared in Alameda and Imperial counties. The counties reporting the largest number of cases were Los Angeles 105, San Joaquin 83, Alameda 66, Sacramento 61, Butte 55, Nevada 52, and Imperial 42. The disease was endemic in San Joaquin and Nevada counties for many months. A considerable number of cases also appeared in Santa Clara and Kern counties; there was no outbreak of widespread extent, however. Nearly all of the cases were very mild, appearing suddenly, but no great numbers of people were affected at any one time. Most of the epidemics covered periods of three and four months, but no more than 23 cases were reported during any one month in the same place. The fact that the disease has been of such a mild form, throughout the year, however, does not indicate that there should be any cessation in the practice of vaccination, as the virulent cases appeared very suddenly, along with other cases that were mild in character.

Typhoid Fever.

During 1913, 1,474 cases of typhoid fever were reported. It is interesting to note that this disease, which has always been rated as a rural disease, is more prevalent in the large centers of population, according to reports, than it is in the rural districts. Alameda, Los Angeles and San Francisco counties, combined, reported 828 cases, more than half of the total number reported, while Sacramento reported 206 cases. Of course the use of polluted river water for domestic purposes in Sacramento is responsible for this large number of cases; although it is true that a large proportion of these cases were in persons who came into Sacramento from outside points. This is also true of Oakland, Los Angeles and San Francisco. While typhoid fever must still be rated as a rural disease in California, it is significant that but 440 cases were reported from the counties outside of Alameda, Los Angeles, San Francisco and Sacramento. Investigations conducted in San Francisco and Sacramento would tend to show that at least 50 per cent of urban cases are in persons who have returned from trips into the country; and it is safe to assume that for about one half of all cases occurring in cities, the disease was contracted in the rural districts. More cases of this disease are reported during the summer months than at any other time of the year, the climax coming generally in October when the number is almost invariably highest. During October, 1913, no less than 284 cases were reported. Of this number, 70 were in Los Angeles County, 56 in Alameda County, 54 in San Francisco and 23 in Sacramento. During July of the same year, however, Sacramento reported 57 cases. There were no outbreaks of sudden, widespread importance in any section of the State, although during July of 1913, 15 cases were reported from Stanislaus County, and a considerable number of cases were reported from Fresno County during the summer, as well as from Monterey, Tehama and Humboldt counties. In none of these places, however, was the outbreak of grave importance. About 25 per cent of all cases died fatally. The highest rate of mortality was

during November. The end of the vacation season brings the largest number of cases and the greatest number of deaths from the disease. The rate of mortality is higher in the winter months than it is in the summer months, although there were twice as many cases reported during the summer months as the winter months.

Tuberculosis.

In actual numbers, more cases of this disease were reported in 1913, than for any of the communicable diseases. The total for the year was 2,571, but some idea of how neglectfully this disease is reported may be gained, when it is stated, that there were 5,402 deaths during the same period. The disease was much more satisfactorily reported during the latter part of the year, when active steps were taken to secure reports from health officers and physicians. The division of communicable disease and the department of tuberculosis doubled their efforts to secure such reports with results that are fairly satisfactory, although there is still great room for improvement.

It is very difficult to secure reports from physicians, of cases of malaria and tuberculosis. This is due to the long chronic nature of the diseases and also to the reticence of both physician and patient to having the case reported. The reports by months for 1913 have no bearing upon the seasonal prevalence of the disease, for the reason that comparatively few reports were received early in the year. It is a well known fact, of course, that more cases of the disease make their appearance during the winter months than during the summer months, and the figures as submitted in this report must not be considered of any value as regards seasonal prevalence.

Whooping-cough.

The total number of cases for the year 1913 was 628. Most of these occurred during the spring and fall months, the maximum number being reported during October, 134, and the minimum number during February, when there were only three cases.

Diphtheria.

Six hundred and fifty-nine cases, with 184 deaths were reported during the year. In contrast with measles and mumps, this disease was more prevalent during the fall months of October, November and December, than during the spring and summer. There were no epidemics of importance, the cases having been well scattered throughout the entire State, the greatest number of cases, of course, having been reported from the large centers of population.

Scarlet Fever.

Like diphtheria, this disease was more prevalent during the fall months, the minimum number having been reported during August and September. There were 1,695 cases, with 85 deaths, reported. Most of these cases were in the large centers of population although, like diphtheria, the disease was widespread throughout all sections of the State.

Rabies.

Five cases of human rabies were reported during the year, making a total of 26 deaths from this disease since it first appeared in California.

Poliomyelitis.

There were 90 cases of poliomyelitis reported during 1913. Thirty-three of these cases were fatal. This is a much better record than for previous years, when there have been epidemics of grave importance. Most of these cases were reported during the fall months, October and November, although a considerable number were reported during July and August. The disease, however, was not nearly so widespread as during 1911 and 1912, when several hundred cases were reported. During those years, epidemics of serious import occurred.

Pellagra.

Eight cases of pellagra were reported during the year. With but one or two exceptions, these cases were all imported from other states, most of the patients concerned having come from the southern states. This disease has not yet made its appearance in California to such an extent as to cause the alarm which it has caused in many of the southern states. It is believed that not a single case of local origin has appeared in California.

Leprosy.

Ten cases of leprosy were reported during 1913. Most of these were discovered in Los Angeles and San Francisco, and in all cases the lepers were confined, in accordance with the provisions of the code. This makes the total number of lepers in California about 30, the greater part of whom are Mexicans in southern California.

Trachoma.

Fourteen cases of trachoma were reported. These cases were discovered in the schools for Indians and in the larger cities of the State. Ten of these cases were reported during November, but this indicated no particular outbreak of the disease.

Cerebrospinal Meningitis (Epidemic).

Sixty-seven cases of this disease were reported during the year, 49 of which proved fatal. Fifteen of these cases were in San Francisco, 14 in Los Angeles, 8 in Sacramento and 5 in San Bernardino counties. The largest number of cases to be reported during any one month was during March, when 8 cases were reported from Los Angeles. The disease appeared in 16 counties of the State, the mountain counties and most of the coast counties having reported no cases.

Chickenpox.

Chickenpox, like measles and mumps, was more prevalent during the spring months; 1,394 cases, in all, were reported; 290 cases were reported during January and but 26 during August.

Measles.

Out of 1,796 cases of measles reported during 1913, 154 proved fatal. Most of the fatal cases were in children under five years of age. The disease was more prevalent during the late winter and early spring months, very few cases having been reported during the late summer and early fall.

Mumps.

In numbers, mumps was next of importance after tuberculosis; 2,218 cases of the disease were reported, most of which occurred during March, April and May. The disease was widespread in the large centers of population throughout the State, but was of comparatively short duration, more than one half of the entire number having occurred during March and April.

GROUP I. COMMUNICABLE DISEASES.
Seasonal Prevalence and Mortality During 1913, by Months.

	January		February		March		April		May		June		July	
	Cases--	Deaths--	Cases--	Deaths--	Cases--	Deaths--	Cases--	Deaths--	Cases--	Deaths--	Cases--	Deaths--	Cases--	Deaths--
Diphtheria	154	12	71	7	154	17	107	22	112	15	110	15	99	5
Measles	229	4	200	8	206	8	315	29	315	37	215	28	89	13
Cerebrospinal meningitis (epidemic)	7	2	4	4	18	6	8	5	6	2	2	6	3	3
Poliomyelitis (infantile paralysis)	6	4	3	2	3	6	4	4	2	2	1	16	6	6
Scarlet fever	154	4	85	5	196	1	104	8	132	14	85	14	100	5
Smallpox	85	8	51	1	106	101	1	115	1	55	3	41	---	---
Tuberculosis	192	485	33	478	203	500	200	498	141	474	120	446	182	418
Typhoid fever	81	22	23	23	53	24	46	23	83	23	95	34	213	47
Totals	908	541	467	529	996	559	887	585	908	568	684	547	743	497

GROUP I. COMMUNICABLE DISEASES—Continued.

	August		September		October		November		December		Total cases, 1913	Total deaths, 1913
	Cases--	Deaths--	Cases--	Deaths--	Cases--	Deaths--	Cases--	Deaths--	Cases--	Deaths--		
Diphtheria	102	6	118	17	199	19	245	23	188	26	1,659	174
Measles	39	12	23	1	42	7	19	2	44	5	1,793	154
Cerebrospinal meningitis (epidemic)	3	5	---	3	7	8	4	4	5	1	67	49
Poliomyelitis (infantile paralysis)	10	3	3	---	19	1	14	5	8	1	90	33
Scarlet fever	78	4	84	7	244	1	228	14	206	8	1,695	85
Smallpox	35	---	35	---	35	---	64	1	81	---	803	15
Tuberculosis	163	383	204	391	410	442	386	415	339	445	2,573	5,402
Typhoid fever	183	49	165	47	284	52	124	56	134	35	1,484	435
Totals	613	462	682	466	1240	530	1084	520	1005	521	10,162	6,325

GROUP II. COMMUNICABLE DISEASES.
Seasonal Prevalence, by Months, During 1913.

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
Beri-beri	2	---	---	---	---	---	---	---	---	1	---	---	3
Chickenpox	290	65	250	187	162	53	60	26	47	133	---	121	1,394
Dengue	---	---	---	1	---	---	---	---	---	---	---	---	1
Dysentery	2	---	---	---	---	---	---	---	5	3	2	13	25
Erysipelas	22	2	---	18	20	15	21	4	10	9	11	15	147
German measles	---	---	---	---	---	---	---	3	4	5	8	4	24
Glanders	5	2	2	---	---	1	---	---	---	1	5	1	17
Gonococcus infection	3	10	4	8	9	37	11	11	---	12	4	8	117
Hookworm	---	---	---	---	---	---	---	1	---	1	---	---	2
Leprosy	---	1	---	---	2	---	1	1	---	2	1	2	10
Malaria	15	1	---	---	---	4	4	7	12	22	8	4	77
Mumps	284	33	636	546	390	28	40	45	45	61	70	40	2,218
Pellagra	---	---	---	---	---	2	1	4	---	---	1	---	8
Plague	---	---	---	---	---	---	---	1	---	---	---	---	1
Pneumonia	126	16	92	67	44	45	38	27	40	24	22	57	598
Rabies	---	---	---	---	2	---	---	1	---	---	2	---	5
Syphilis	---	1	3	2	2	---	5	1	5	0	2	2	32
Tetanus	---	---	---	3	2	---	---	2	3	3	---	---	15
Trachoma	1	1	---	---	---	---	1	---	---	1	10	---	14
Whooping-cough	58	3	---	58	78	22	21	62	52	134	65	75	628
Totals	806	135	987	800	711	207	203	196	223	422	211	344	5,337

TYPHOID FEVER.

Number of Cases Reported in California During 1913, by Months.

County	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total 1913
Alameda	20	7	6	10	16	16	29	18	19	56	22	14	233
Butte					3			2	2		4	5	16
Colusa				2	5	2	2	3	4	4		6	28
Contra Costa		1		2	1		2	1	1	1			9
El Dorado										1		1	2
Fresno						1	6	12	5	10		1	35
Glenn		1											1
Humboldt								8	2	4			14
Imperial	1								5	8		2	16
Kern				2			1		1		1		5
Kings		1	2					2					5
Lake	5							4					9
Lassen						3		6	3	3			15
Los Angeles	10	7	12	6	12	19	29	44	31	70	41	21	302
Madera			1		1	1			1				4
Mariposa							1		3	1			5
Mendocino			2						8	4			14
Merced			2								1		3
Modoc								1				2	3
Monterey									2	12	2	2	18
Napa										1			1
Nevada							7	7					14
Orange							1	1	3	3			7
Placer	2				1		1	2	1	1			8
Plumas									1	1			2
Riverside			2	1		1		1	2	2	1	2	12
Sacramento	18	2	8	3	12	20	57	12	15	23	2	34	206
San Benito								1		5	1		7
San Bernardino								5		2	6	4	17
San Diego					1		5	12	4	3	5		30
San Francisco	24		15	12	26	24	45	25	18	54	28	22	298
San Joaquin						1	1		1	1			4
San Luis Obispo						1							1
San Mateo						1	1		2			1	5
Santa Barbara					2			1				2	5
Santa Clara				2	1		2	5	5	2	1		16
Shasta								1	1				2
Sierra									2			1	3
Siskiyou				1					1	1			3
Solano				3			1	6	2	2		2	16
Sonoma			1				4		4	3			12
Stanislaus		1	2		1	2	15	1	7	4	3		36
Sutter							1				2		3
Tehama	1	1				2	2					11	17
Tulare				2				2			1		5
Yolo		2			1	1	1		1	1			7
Yuba									1	1	1		3
Totals	81	23	53	46	83	95	208	183	158	284	122	133	1,474

SMALLPOX.

Number of Cases Reported in California During 1913, by Months.

County	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total cases
Alameda	22	11	8	4	4	2	3	1		1	5	5	63
Butte		1	17	18	17							2	55
Calaveras				7	3								10
Colusa											1		1
Contra Costa	3				15	2	3				2	1	26
El Dorado				1				1					2
Fresno		1	3								1	4	9
Glenn					1								1
Humboldt			1	1	1	3	1		1				8
Imperial	16	2		6	8	3					3	4	42
Kern			3	6	4		1		1	5	5	12	37
Lake						6	3		1				10
Lassen	1		1										2
Los Angeles	4	4	13	15	17	14	3	1	3	6	9	16	105
Marin			3	3	5								11
Mendocino					5	1		11				2	19
Merced									1				1
Nevada	1	1			5	11	6	8	8	8	3	1	52
Orange		2	6				1						9
Placer	2	1	1	1				1	2			2	10
Riverside				2									1
Sacramento	6	17	14	16	1	1	3	1		1		1	61
San Bernardino		1	10										11
San Diego	6	2		6	4	2						2	22
San Francisco	7		2	5	6	3	3		2	1	3	2	34
San Joaquin	1	1	13	9	2			2	4	9	23	19	83
San Mateo							1						1
Santa Barbara													1
Santa Clara				1	3	3		8	10	2	5	2	34
Santa Cruz	1										1	1	3
Shasta	13	4	2										19
Sierra									1				1
Siskiyou					3								3
Solano			3		7	3	7						20
Sonoma							4	1					5
Stanislaus			2			1	1			2	2	1	9
Sutter												2	2
Tehama		2	3		1								6
Tulare	1				3						1		5
Yolo	1	1					1		1				4
Totals	85	51	105	101	115	55	41	35	35	35	64	81	803

POLIOMYELITIS (INFANTILE PARALYSIS).

Number of Cases Reported in California During 1913, by Months.

County	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total cases.
Alameda	3									2			5
Fresno					2	1	2						5
Glenn											1		1
Humboldt										8	7	1	16
Kern				1									1
Kings				1				1					2
Los Angeles	2	2		1	1		2	4	2	5	4	4	27
Madera					1				1				2
Monterey				1									1
Placer				1									1
Riverside										1			1
Sacramento										1			1
San Bernardino	1						1			2			4
San Diego			1								3		4
San Francisco				1		1		1					3
San Luis Obispo			1										1
Santa Clara								1				2	3
Siskiyou							8						8
Stanislaus							1	2					3
Ventura								1					1
Totals	6	2	2	6	4	2	14	10	3	19	14	8	90

CEREBROSPINAL MENINGITIS (EPIDEMIC).

Number of Cases Reported in California During 1913, by Months.

County	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total cases.
Alameda		1	1	3	2					1	1	1	10
Contra Costa	1												1
Fresno	1												1
Humboldt								1					1
Imperial			1										1
Los Angeles	2	2	8							1	1		14
Merced	1							1					2
Monterey										1			1
Placer				1									1
Sacramento		1		4	1	1					1		8
San Bernardino			5										5
San Francisco	2		3		1	1	3			2	2	1	15
Stanislaus					1			1		1			3
Tulare												1	1
Yolo						1				1		1	3
Totals	7	4	18	8	6	2	3	3		7	5	4	67

REPORT OF BUREAU OF FOODS AND DRUGS.

By M. E. JAFFA, M.A., Director.

The report herewith submitted is the fourth biennial report of the activity of the State Food and Drug Laboratory for the period from July, 1912, to July, 1914. The data indicates the examination of 2,687 samples. This number is slightly lower than the corresponding figure for the previous biennial period. This is due to the fact that the last biennial report contained the results of work up to the first of August, while this report, herewith presented, covers the period ending June 30, 1914. If we add to the above figure the number of samples examined during the month of July, 1914, the total figure represents practically the same number of samples as was examined during the previous biennial period. It must, however, be understood that the number of samples examined is no criterion of the amount or the kind of work which is done at the laboratory.

The State Food and Drug Laboratory does not examine samples of milk and dairy products, except in a very few instances. The main bulk of this work is conducted under the supervision of the State Dairy Bureau. The samples of food products and drugs submitted to the State Laboratory require considerable work, far more than is necessary for the examination of milk or dairy products.

The cooperative work of the State Laboratory in the matter of the examination of supplies furnished state institutions has formed an important part of the work during the past two years. The supplies referred to consist, not only of all forms of food, food products, and drugs, but miscellaneous articles, such as blankets, coal, cutlery, oils, soaps, etc. Excellent results have followed such cooperation, in that the supplies furnished state institutions have greatly improved in quality, so that there is practically no waste with reference to the matter of food and drugs, and the financial saving has been very appreciable.

The laboratory has further been engaged in the matter of the examination of samples of sewage, sewage wastes, and factory wastes submitted by the State Fish and Game Commission and different cities.

As stated in the last report, the personnel of the Bureau of Food and Drugs should be increased. The force of inspectors has been added to so that there are now five inspectors working in connection with the Food and Drug Laboratory, three of these being food and drug inspectors, and two food inspectors only. It is the policy of the board, however, to hereafter appoint only those inspectors who can qualify for both food and drug inspection. The personnel of the laboratory will, we are glad to say, be increased, in that one more chemist is to be appointed very shortly. Even with this increase the force is far too small to adequately cope with the conditions that now exist in this State. The number of inspectors should be doubled and more chemists should be at work in the laboratory.

The State Laboratory has also been active in connection with educational enterprises. Too much importance cannot be placed on this branch of the activity of the laboratory. Lectures have been given before different associations, clubs, etc., and these were accompanied by exhibits which have been the means of interesting a very large number of con-

sumers. It is toward this class that educational work can be best directed.

The inspectors, as they travel over the State, are still meeting with the same cooperative spirit among dealers and manufacturers that was referred to in the last report. There are very few instances where the inspectors are not cordially received and the advice and suggestions in connection with the enforcement of the law gratefully accepted.

No reference is made here to the law, amendments, etc., as such data is published in detail elsewhere and can be obtained upon application to the Director of the State Laboratory, Berkeley, California.

Laboratory Work.

The data here reported represents the summary of chemical and microscopical examination of food and drugs and miscellaneous supplies furnished by state institutions. In addition, however, to the analytical work, as has been stated, much time is consumed with correspondence and interviews.

The data represented by the tables following are arranged alphabetically for the sake of convenient reference.

Baking Powders.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Baking powders		1		17	18
August 1, 1912, to August 1, 1913— Baking powders		2		23	25
August 1, 1913, to July 1, 1914— Baking powders		1		7	8
Totals, 1912-1914		3		30	33

It was stated in the last biennial report that no government standards for baking powders had been adopted. We regret to say that the same condition still obtains, and until the United States Department of Agriculture does adopt some standard with reference to this product and issues rules and regulations concerning the labeling, etc., no detailed studies will be profitable. All that is necessary under present conditions is that a baking powder be composed of materials ordinarily used, and that no injurious or deleterious substances be incorporated in the powder, and that the label must be a truthful one. Any false or misleading statement on the label would constitute a violation of the food law. As shown by the table, thirty-three samples have been examined, with the result that thirty were found to be unobjectionable in the eyes of the law.

Baking Sodas.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to August 1, 1913— Baking sodas -----				4	4
August 1, 1913, to July 1, 1914— Baking sodas -----				2	2
Totals, 1912-1914 -----				6	6

As will be seen by the table, six samples of baking soda were submitted to the laboratory. These were samples from state institutions and were found to comply in all respects with the law.

Beers.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Beers -----			3	48	51
August 1, 1912, to July 1, 1914— Beers -----		2		2	4

In view of the fact that the United States Department of Agriculture has not published any standards for beers, no extensive investigations were carried on in connection with this product. A decision with reference to beers is expected in the very near future. As soon as such decision is issued the laboratory will take up this question in detail. Under present conditions it would not be a profitable source of investigation.

Beverages.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Beverages -----	23	40	94	155	312
August 1, 1912, to August 1, 1913— Beverages -----		6	9	20	35
August 1, 1913, to July 1, 1914— Beverages -----	1	1	4	5	11
Totals, 1912-1914 -----	1	7	13	25	46

For the period covered by this report forty-six samples of beverages were examined. Many different varieties of soft drinks were included. Fifty per cent of those tested were found to conform in every respect to the provisions of the California Food Act. The mislabeling consists in the main of the dealers and manufacturers not stating on the label the presence of artificial colors and flavors as required by law.

Breads.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Breads -----	5		5	6	16
August 1, 1912, to August 1, 1913— Breads -----			7	3	10
August 1, 1913, to July 1, 1914— Breads -----		1	3	1	5
Totals, 1912-1914 -----		1	10	4	15

Eighteen samples of breads were tested at the laboratory. Of these, thirteen were labeled gluten bread, but only four were entitled to such label. The remainder were mislabeled, in that the nitrogen content was far below that called for by a gluten bread, which should contain not less than four per cent of nitrogen.

Butter.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Butter -----	2	10	19	11	42
August 1, 1912, to August 1, 1913— Butter -----		2		5	7
August 1, 1913, to July 1, 1914— Butter -----	1	3		2	6
Totals, 1912-1914 -----	1	5		7	13

As stated before, the State Dairy Bureau has special charge of the enforcement of the Dairy Act, and, therefore, conducts examinations of milk, butter and cheese. At the same time, samples of butter and dairy products have been submitted to the State Laboratory by inspectors and state institutions. Thirteen samples have been thus submitted. No adulterations, as such, were found. It is true that the percentage of fat in two samples was low, being less than 82 per cent, but this figure is still in excess of that called for by the state law—namely, 80 per cent. Several samples were found to be short weight, with the result that successful court prosecutions were conducted. In this connection, it is very encouraging to be able to state that very little short-weight butter is to be found on the California markets today.

Cereals and Cereal Products.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Cereals -----	8	1	-----	27	36
August 1, 1912, to August 1, 1913— Cereals -----	-----	-----	-----	7	7
August 1, 1913, to July 1, 1914— Cereals -----	-----	-----	-----	14	14
Totals, 1912-1914 -----	-----	-----	-----	21	21

As indicated by the above, twenty-one samples of different cereals were examined, with the result that they were all found to be in conformity with the state law. Owing to the result of state inspection and the cooperation of the manufacturers, very few cereals of poor quality are to be found throughout the State. There are, however, a few stores in small places where the stock of cereals is kept too long, with the result that they become contaminated with weevils or other insects, and are thus rendered unfit for human consumption.

Cheese.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to August 1, 1913— Cheese -----	-----	1	-----	-----	1
August 1, 1913, to July 1, 1914— Cheese -----	-----	1	-----	1	2
Totals, 1912-1914 -----	-----	2	-----	1	3

Only three samples of cheese were submitted, again due to the fact that the State Dairy Bureau has this matter under its jurisdiction. There was nothing objectionable with the samples, except that in one case the label was incomplete because the guaranty legend did not indicate a serial number, as the law requires, and in another the word "type" did not appear on the label.

Chocolate and Cocoa.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Chocolate and cocoa			5	10	15
August 1, 1912, to August 1, 1913— Chocolate and cocoa		1	15	3	19
August 1, 1913, to July 1, 1914— Chocolate and cocoa	1		11	6	18
Totals, 1912-1914	1	1	26	9	37

It will be noted from an inspection of the foregoing table that thirty-seven samples of chocolate and cocoa were examined during the period covered by this report. Of these, twenty-eight were found to be in violation of the law, the main infringement being that the substance was labeled "chocolate" when analysis indicated that the label should have been cocoa, or in some cases, a mixture of chocolate and cocoa. The same condition of affairs exists now with reference to this product, as indicated in the last report. It must be thoroughly understood, as stated previously, that there is nothing objectionable in any way to cocoa as a beverage. For many it is far more suitable than chocolate. In that the cocoa contains less fat than does the chocolate. At the same time, the cocoa is cheaper than the chocolate, and for that reason continued inspection and analysis is necessary to protect both the honest manufacturer and the consumer.

Coffee.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Coffee	8		1	24	33
August 1, 1912, to August 1, 1913— Coffee			3	116	119
August 1, 1913, to July 1, 1914— Coffee			1	41	42
Totals, 1912-1914			4	157	161

One hundred and sixty-one samples of coffee have been tested at the laboratory during the past biennial period. Of these by far the larger portion consisted of samples submitted by state institutions to ascertain whether or not they met the required specifications. In very few instances were any infringements found, and these were due mainly to the presence of chicory in the coffee, such not being indicated on the label.

Six samples of coffee extracts, so called, were submitted to the laboratory by inspectors for examination. These, in the main, represent very old goods, which were manufactured previous to the passage of the food law. They are illustrations of the practice of a good many country grocers, who still retain on their shelves goods which should have been removed years ago. The examination of these extracts show that they are adulterated and mislabeled, in that they contain no caffeine. They should contain more caffeine than is found in coffee.

Coffee Substitutes.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to July 1, 1914— Coffee substitutes -----	-----	4	-----	27	31

The infringements of the food law in connection with coffee substitutes lies mainly in the exaggerated statements concerning the nutritive value of these products. For those who find coffee injurious, coffee substitutes are to be recommended, but those using such should be familiar with the fact that there is very little nutriment in the decoctions made from the cereal compounds. Very little nutriment originally contained in any of the cereals is dissolved by treatment with water. If, however, the coffee substitutes contain fruits, sugars, etc., naturally these will appear in the preparations when made. It can be safely said though that the main nourishment in these coffee substitutes lies in the cream or milk and sugar used. The hygienic value of a hot drink is not here discussed; it is merely a question of nutritive value of these coffee substitutes. In this connection it should also be said that coffee or tea, as such, carry no nutriment, but possess the stimulating effect which for some may be injurious, and for others not.

Mixtures, Coffee, Etc.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to July 1, 1914— Coffee, mixtures, etc.-----	-----	-----	1	1	2

There is no objection to the manufacture and sale of such mixtures, provided they are properly labeled, and in this connection it should be said that the labels should plainly and prominently indicate the mixture contained in the package. When such is done there is no infringement whatever, and for many a mixture of coffee and chicory is preferred to plain coffee; but the chicory being much cheaper than coffee, emphasizes from a pecuniary standpoint the necessity of proper labeling.

Colors.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—Colors	27	14		49	90
August 1, 1912, to August 1, 1913—Colors	2			2	4
August 1, 1913, to July 1, 1914—Colors				1	1
Totals, 1912-1914	2			3	5

The United States Department of Agriculture still allows the use of artificial colors in food and food products, provided the use of such colors is indicated on the label, in accordance with the Food Inspection Decisions of the Department. The colors which are allowed are indicated in Food Inspection Decisions 76 and 77. These colors are expensive, and in consequence thereof there are on the market many cheaper colors which are sold to dealers. The dealer, however, has protection if he will be careful to require of the manufacturer or jobber a guaranty properly worded.

Condiments.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Catsup		43		22	65
Condiments, miscellaneous	4	53	1	50	108
Pickles	3	38		37	78
Prepared mustard	61	5	1	27	94
Salad dressing		4		4	8
Sauce, miscellaneous	1	7	1	17	26
Sauce, Worcestershire	1	2		13	16
Totals	70	152	3	170	295
August 1, 1912, to August 1, 1913—					
Catsup		5		9	14
Condiments, miscellaneous				3	3
Mustard, prepared		1		1	2
Pickles		1		1	2
Sauce, Grau's		2		1	3
Sauce, Worcestershire		1		1	2
Totals		10		16	26
August 1, 1913, to July 1, 1914—					
Catsup		2		13	15
Chow chow				1	1
Horseradish				2	2
Mayonnaise				2	2
Mustard		2		2	4
Pickles	1	1		4	6
Relishes				2	2
Sauces	1	1		5	7
Tomato puree				2	2
Apple butter				1	1
Totals	2	6		34	42
Totals, 1912-1914	2	16		50	68

It is very encouraging to report that the number of adulterated and misbranded sauces and condiments is far less than was the case two years ago. Each year the percentage of sauces conforming to the law is greater. For the period covered from January, 1908, to August, 1912, upwards of 50 per cent of the samples examined were found to be in violation of the law. During the past year less than 20 per cent of the samples tested were found to be objectionable, and of these the main infringement was mislabeling; the percentage of actual adulteration being less than 5 per cent.

Confectionery.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Confectionery	11	35	2	122	170
August 1, 1912, to August 1, 1913— Confectionery		5		19	24
August 1, 1913, to July 1, 1914— Confectionery	2			7	9
Totals, 1912-1914	2	5		26	33

Of the thirty-three samples of candy examined only seven infringements were noted. Of these but two could be placed in the adulterated class. Many of the colors and flavors which are used in candy are artificial, but are allowed by law, and it should be said to the credit of the candy manufacturers that they are, as a class, cooperating with the Board of Health in the matter of properly labeling candies containing artificial colors and flavors.

Crackers.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Crackers				2	2
August 1, 1912, to July 1, 1914— Crackers*					

*None received.

Cream.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Cream	2	1		6	9
August 1, 1912, to August 1, 1913— Cream				4	4
August 1, 1913, to July 1, 1914— Cream				2	2
Totals, 1912-1914				6	6

Very few samples of cream were analyzed, such examinations as were made being incidental to the inspection of restaurants. There was nothing objectionable found with the samples submitted.

Eggs.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Eggs	1	80	2	30	122
August 1, 1912, to August 1, 1913— Eggs	6	21	-----	28	55
August 1, 1913, to July 1, 1914— Eggs	2	8	-----	18	28
Totals, 1912 to 1914.....	8	29	-----	46	83

The tabulated data published in the previous report showed that practically 75 per cent of the eggs examined were mislabeled, in that they were labeled "fresh" when they were either old or cold storage. The figures submitted for this report would indicate a considerable improvement in this direction, as less than one third of the samples examined were found to be misbranded. It is to be hoped that this improvement will continue. Since the publication of the last report, the cold storage law has gone into effect, regulating the sale of foods under cold storage, including eggs and butter. The wording with reference to these two articles of food is as follows:

The term "cold stored" as used in this act shall be construed to mean the keeping of "articles of food," excepting eggs and butter, in "cold storage" for a period exceeding thirty days; *provided, however,* that when the term "cold stored" is used in connection with eggs and butter, it shall mean the keeping of these "articles of food" in "cold storage" for any length of time whatever. The term "articles of food" as used in this act shall be construed to mean and include fresh meat, and fresh meat products (except in process of manufacture), fresh fruit and vegetables, fish, shell-fish, game, poultry, eggs, butter and cheese.

Egg Substitutes.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1913, to July 1, 1914— Egg substitutes	-----	-----	1	3	4

Seven samples of egg substitutes were received at the laboratory, the examination of which resulted as above indicated.

It may be said in discussing this article that if a material is to be used as a substitute for egg it should have to some extent the food value of the egg. It is well known that eggs are one of the best foods for man, and from the standpoint of nutrition an ordinary baking powder, with a little extra starch or flour and with one tenth per cent or so of albumen cannot be called, under any circumstances, a substitute for eggs. Such substitutes, it would seem, are nothing more or less than baking powders, and it will be noticed that the label generally states, "No baking powder required when this is used." Naturally not, because two doses of baking powder are not required for one cake.

It may be said, from the legal standpoint, in view of the fact that such labels often state, "the powder is not made from eggs," that there is no objection, but it would appear that the word "substitute" implies and involves a material, in the case of eggs, having the food value equal to that of eggs, or approximating that of eggs—otherwise, how is it a sub-

stitute? Eggs are used in baking for the purpose of increasing the food value and palatability, as much as for the mechanical effect. Again, when eggs are used, baking powder is also used in nine cases out of ten, and in ten cases out of ten by the best class of housewives and housekeepers.

In this connection, it is of interest to note that the Department of Agriculture has issued a circular of information with reference to this subject, as follows:

The Department of Agriculture has recently received letters from a number of persons who desire to place a product on the market under the name "Egg Powder" or "Egg Substitute." These designations would undoubtedly lead the ordinary purchaser to believe the product either to be made from eggs or to have the effect of eggs in baking. In reality, the product is nothing but a baking powder containing a considerable excess of ground rice as a filler and colored yellow with powdered tumeric.

The Food and Drugs Act prohibits the sale of food products under false or misleading names and as it is evident that a product of this kind cannot be regarded in any way as a substitute for eggs in baking, its sale as an egg powder or egg substitute is not sanctioned by the department.

Extracts.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Lemon	6	31	107	126	270
Vanilla	5	23	32	123	183
Strawberry	1	7	3	9	20
Orange			2		2
Pineapple			2	1	3
Cherry			2		2
Banana			1		1
Raspberry		16	3	8	27
Peppermint		1	4		5
Miscellaneous	4	20	2	28	54
Totals	16	98	158	295	567
August 1, 1912, to August 1, 1913—					
Lemon	2	6	9	28	45
Vanilla		1	3	14	18
Jamaica ginger			2	1	3
Essence of peppermint			1		1
Coffee extract			1		1
Orange extract			3		3
Pineapple extract		1	1		2
Strawberry extract				1	1
Miscellaneous		1		4	5
Totals	2	9	20	48	79
August 1, 1913, to July 1, 1914—					
Lemon		7	4	17	28
Vanilla		2	2	9	13
Jamaica ginger	1		6	1	8
Essence of peppermint		2	1	4	7
Coffee extract			3	1	4
Orange extract			2		2
Pineapple extract			2		2
Raspberry extract			1	1	2
Strawberry extract			2		2
Miscellaneous			1	2	3
Totals	1	11	24	35	71
Totals, 1912-1914	3	20	44	83	150

An examination of the foregoing table would convey the impression that during the past biennial period little improvement had been made

in the quality of the extracts which are placed on the California market. This is not in accordance with the facts of the case. There is a decided improvement with reference to the output of these products. The data represents the examination of samples submitted, but does not cover the inspection of samples on the market. There has been great advance in the matter of labeling extracts, which advance is not apparent in the above table. The inspectors, in taking up samples of these extracts, exercise a certain amount of discretion in collecting samples which they really suspect require examination. Therefore, while the per cent of nonconformity with the law is practically as great as is shown by figures for previous years, there is, however, in accordance with the foregoing, actual improvement in these matters. It is very encouraging to note that the sale of dilute extracts is prohibited in this State, unless such dilute extracts are properly labeled. This action is taken in accordance with the advice received from the Bureau of Chemistry, as indicated by the statement quoted below.

The infringements are similar to those reported previously: For lemon extracts, low content of oil and artificial color; for vanilla extracts, the presence of coumarin and vanillin not reported on label; for essence of peppermint, low content of oil; for Jamaica ginger, dilute in every respect, the label not indicating such dilution; for pineapple and banana extracts, artificial colors and flavors not indicated on the label.

The board is of the opinion that sub-standard extracts should bear a plain statement on the label to show their actual strength, some such phrase as one half strength, or one fourth strength, etc. This statement of strength should so appear on the package in color and background that it will be as clearly legible as the main portion of the label.

Fish, Shellfish, Etc.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Fish -----	7	9	-----	61	77
August 1, 1912, to August 1, 1913— Fish -----	-----	3	-----	15	18
August 1, 1913, to July 1, 1914— Fish -----	1	-----	-----	2	3
Totals, 1912-1914 -----	1	3	-----	17	21

The main infringements found in the examination of the samples of fish here recorded were due to the use of benzoate of soda as a preservative, such use not being indicated on the label. In one case, however, the fish was found to be decomposed, putrid, and unfit for human consumption. More extensive investigation of samples of dried fish is hardly called for, in view of the fact that these enter very largely into interstate commerce, and, therefore, the federal laboratories control the inspection and examination of all such foods and food products.

Flour.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Flour -----	3	11	1	85	100
August 1, 1912, to August 1, 1913— Flour -----				72	72
August 1, 1913, to July 1, 1914— Flour -----				56	56
Totals, 1912-1914 -----				128	128

One hundred and twenty-eight samples of flour were submitted to the laboratory. By far the larger number of these samples were sent from state institutions, representing their deliveries for consumption at the respective institutions.

The specifications for flour to be delivered to the state institutions call for a gluten (protein) content of not less than 10 per cent. Nineteen samples were found to be below the requirements in this respect, in that the content of gluten was less than 10 per cent, the minimum being 7.86 per cent. It must be remembered, however, that such flours, while not meeting the specifications of the state institutions, still cannot be considered as adulterated, mislabeled, or misbranded within the meaning of the California Pure Food Act. The standard for flour under this act is as follows:

Flour is the fine, clean, sound product made by bolting wheat meal, and contains not more than thirteen and one half (13.5) per cent of moisture, not less than one and twenty-five hundredths (1.25) per cent of nitrogen, not more than one (1) per cent of ash, and not more than fifty hundredths (0.50) per cent of fiber.

It is, therefore, seen that even the flour which rated the lowest in protein (7.86) is still above the state standard, as indicated.

Fruit.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Fruit -----		7	2	25	34
August 1, 1912, to August 1, 1913— Fruit -----	2	3		11	16
August 1, 1913, to August 1, 1914— Fruit -----	1			12	13
Totals, 1912-1914 -----	3	3		23	29

The samples of fruits examined consist of frozen lemons, frozen oranges, and dried fruits. The only infringements found were in the cases of the lemons and oranges, which were badly frozen and should not have been exposed or offered for sale. It should be stated, to the credit of the lemon and orange growers, that they use their best effort to prevent the use of frozen fruit by the consumer, and in this matter cooperated very heartily with the State Board of Health.

Honey.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Honey -----		4	10	34	48
August 1, 1912, to August 1, 1913— Honey -----				5	5
August 1, 1913, to July 1, 1914— Honey -----				4	4
Totals, 1912-1914 -----				9	9

While only a few samples of honey were examined during the past two years a very large number were inspected, with the result that only those which were suspected of being adulterated or misbranded were submitted to the laboratory by the inspectors. The analytical data shows that even in these cases the inspector was mistaken, in that none of the samples tested evidenced any infringements of the law.

Ice Cream.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Ice cream -----	18	8	18	170	214
August 1, 1912, to August 1, 1913— Ice cream -----		5	10	84	99
August 1, 1913, to July 1, 1914— Ice cream -----		2		18	20
Totals, 1912-1914 -----		7	10	102	119

One hundred and seventeen samples of ice cream were examined, with the result that only ten were found to be adulterated, in that the percentage of fat was below the standard of 12 per cent, two samples examined showing less than 6 per cent of butter fat.

Ice.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to July 1, 1914— Ice -----				7	7

The examination of ice above reported was made at the request of the President of the State Board of Health, with the object of detecting any pollution which might be present. It was feared that the pollution of ice was more or less responsible for some of the typhoid fever cases existing in the bay region.

Official samples were secured by an inspector of the State Food and Drug Laboratory. Each sample of ice was brought to the laboratory as a

large cake. A portion of the inner part was taken. The pieces were rinsed with sterile water and were allowed to melt in a sterile container. The sample thus procured was examined according to the standard methods of water analysis of the American Public Health Association. The bacterial count of organisms which developed on agar plates incubated at 37 degrees was determined in each instance and tests were made in all cases for the presence of colon bacilli. It is encouraging to state that in all cases the test for colon bacilli was negative.

The chemical examinations of the different samples showed no pollution.

Jams and Jellies.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Jams and jellies.....	19	27	1	78	125
August 1, 1912, to August 1, 1913— Jams and jellies.....		1	2	12	15
August 1, 1913, to July 1, 1914— Jams and jellies.....		3	1	27	31
Totals, 1912-1914		4	3	39	46

It will be noticed that of the forty-six samples tested but seven were found to be in any way objectionable in the eyes of the law, the infringements consisting of the substitution of a cheaper jelly or jam than the one stated on the label, in most cases the cheaper jelly being apple.

Lard.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Lard	5	1		9	15
August 1, 1912, to August 1, 1913— Lard			1	2	3
August 1, 1913, to July 1, 1914— Lard				2	2
Totals, 1912-1914			1	4	5

A comprehensive examination of lards, meat, and meat food products in general is undertaken by the Bureau of Animal Industry, which maintain a well equipped laboratory in San Francisco. Nearly all the lards that are sold in this State are manufactured by establishments which are under federal inspection. It is therefore not necessary that the State Food and Drug Laboratory devote much attention to this food product. Five samples only were submitted, with the result that one was found adulterated, in that it contained 4 per cent of foreign fats.

Liquors.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Liquors	5	7	5	30	47
August 1, 1912, to August 1, 1913— Liquors		2	6	13	21
August 1, 1913, to July 1, 1914— Liquors	1	4	8	10	23
Totals, 1912-1914	1	6	14	23	44

The infringements in connection with liquors consist in the main of brandies and whiskies being sold or offered for sale containing less than the required amount of alcohol, the standard for whisky being 40 per cent by volume of alcohol. Samples of whisky have been examined showing but 32 per cent of this ingredient. Another infringement is the substitution of port wine for cordials. Another form of infringement of the law is in the matter of labeling, in that the label would seem to indicate that the article is of foreign production, whereas in truth and in fact it is made within the state limits. This fact should be indicated on the label.

Meats.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Meats, frankfurter sausage.....	13	7	5	15	40
Meats, bologna sausage.....	11	6	1	12	30
Meats, pork sausage.....	29	7	33	49	118
Meats, chopped.....	154	1	1	203	359
Meats, canned.....	8	1		74	83
Meats, sausage salami.....	3			8	11
Meats, chicken, cold storage.....		5		1	6
Beef extract.....				1	1
Meats, miscellaneous.....	4	3	3	8	18
Totals	222	30	43	371	666
August 1, 1912, to August 1, 1913—					
Meats, chopped.....	17			46	63
Meats, pork sausage.....	2	1	50	36	89
Meats, canned.....				2	2
Meats, bologna sausage.....		7		8	15
Meats, frankfurter sausage.....	1	15	1	14	31
Meats, miscellaneous.....		4		5	9
Totals	20	27	51	111	209
August 1, 1913, to July 1, 1914—					
Meats, chopped.....	17	1		46	64
Meats, pork sausage.....	3	2	4	26	35
Meats, bologna sausage.....				3	3
Meats, frankfurter sausage.....		1		2	3
Meats, chicken tamale.....				4	4
Meats, miscellaneous.....	1	1		3	5
Totals	21	5	4	84	114
Totals, 1912-1914	41	32	55	195	323

The above table indicates very markedly the necessity of continued and stringent inspection of meat and meat food products. Out of 323

samples examined about one third were found to be either adulterated or mislabeled. Unfortunately the adulterations still consist in the addition to the meat of sulfites, the use of which is prohibited by the State Board of Health in meat and meat food products.

As stated previously, benzoate of soda may be used, provided the amount used and the use of the same is properly stated on the label or on a placard or sign properly worded and prominently displayed in the store where such prepared meat is offered for sale. In a previous report reference was made to the use by butchers of certain compounds containing benzoate of soda and bearing a guaranty legend and serial number. It must be again emphasized that if a butcher uses such a compound, containing benzoate of soda, he must so indicate such use by the sign just referred to. The preparation sold to the butcher merely acts as a carrier for the benzoate of soda, and because the label on a package of such a preparation contains a guaranty legend the butcher is not relieved of the responsibility of displaying the proper label or sign.

There still appears to be a misunderstanding in the minds of some butchers regarding the use of cereals in sausage or chopped meat. As has been stated in previous reports, the law fully countenances such admixture, but the label or placard must plainly and properly inform the purchaser that such meat or meat food product contains cereal. The name of the cereal need not be given.

Milk (Fresh).

Material	Number adulterated	Number misbranded	Number adulterated and mis- branded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Milk	18	3	19	76	116
August 1, 1912, to August 1, 1913— Milk		4	5	18	27
August 1, 1913, to July 1, 1914— Milk			3	5	8
Totals, 1912-1914		4	8	23	35

The extensive inspection and examination of milk by the State Dairy Bureau makes it unnecessary for the State Food and Drug Laboratory to devote much time and attention to this food, important as it is. About thirteen samples only were submitted in connection with the inspection of restaurants, hotels, etc. Of these, eight were found to be below standard, in that the fat content was less than 3 per cent.

Four samples of milk were submitted to the laboratory labeled as certified milk. These, upon examination, were found not to be certified milk, in that the milk was not produced in accordance with the state law covering certified milks. Those in question were ordinary milks improperly labeled.

Buttermilk, Dry.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to August 1, 1913— Dry buttermilk				1	1

A sample of dry buttermilk was examined, with the result that it was found to be true to name and fully met the standards for such a food product.

Milk, Evaporated.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Evaporated milk	15		1	65	81
August 1, 1912, to August 1, 1913— Evaporated milk	2	1	2	37	43
August 1, 1913, to July 1, 1914— Evaporated milk			12	8	20
Totals, 1912-1914	2	1	14	45	63

With reference to the examination of evaporated milk—that is, unsweetened condensed milk—it must be said that there is still sold on the California markets samples of this food product which do not meet the requirements of Food Inspection Decision 131, which requires that the total solids shall not be less than 26.5 per cent, or the fat not less than 7.8 per cent, or the sum of the total solids and of fat, not less than 34.3 per cent. The infringement in a very few of the samples examined was the fat content being below the legal requirements. The total solids in some cases did not reach 24.5 per cent. In those with a fat content of above 8 per cent the total solids, plus the fat content, did not amount to more than 32.5 per cent, whereas the standard is 34.3 per cent. It may also be said in this connection that a large number of samples showed that the requirement 34.3 per cent for the sum of the total solids, plus the fat, was not an excessive figure, in that the figures for such samples in some cases reached as high as 38.6 per cent, others 36.7 per cent, and others 37.3 per cent, etc.

Miscellaneous Materials.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Parafa				3	3
Pork and beans				1	1
Rusk, Holland		1			1
Totals		1		4	5
August 1, 1913, to July 1, 1914—					
Pumpkin seed				1	1
Bird seed				1	1
Totals				2	2

Two samples of pumpkin and bird seed were submitted respectively to the laboratory. Upon examination, neither of these showed any violation.

Oils, Edible.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Oils, edible			6	23	29
August 1, 1912, to August 1, 1913—					
Oils, edible		1		22	23
August 1, 1913, to July 1, 1914—					
Oils, edible				7	7
Totals, 1912-1914		1		29	30

The data submitted for olive oils in the last report shows that there was no adulteration of olive oil found. During the period covered by this report thirty samples of olive oil were tested, with the result that no adulteration was found. There was only one case of misbranding, and that was as to locality, etc. There have been complaints made to the laboratory to the effect that olive oil on the market is adulterated, but upon careful investigation of each complaint and an examination of a sample of oil collected as result of such complaint no evidences of violations were found. It may be truly said that the olive oils as found on the market are pure. It is true there are a large number of different varieties of olive oil, no two being alike with reference to taste, color, or general appearance. If a consumer has been accustomed to one brand of oil made from one variety of olives and then changes to another brand, which is decidedly different in color and taste, there is a natural inference on the part of the consumer that such oil is not pure.

There is also a great difference in color and taste between the imported olive oil and the California olive oil, but, so far as examinations have been made, the imported is as pure as is the California.

Pastes.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Pastes	1	10	5	34	50
August 1, 1912, to August 1, 1913— Pastes		5	4	10	19
August 1, 1913, to July 1, 1914— Pastes		2	9	13	24
Totals, 1912-1914		7	13	23	43

Forty-three samples of pastes, which include macaroni, vermicelli, noodles, etc., were submitted by inspectors and state institutions to the laboratory for examination and analysis. The result of the tests indicates that a little less than 50 per cent were in violation of the law. These violations are, in the main, of two classes: (1) the coloring of macaroni, vermicelli, etc., and the label on the package not indicating such additional color, (2) the selling of pastes labeled egg noodles, which in fact contain very little, if any, egg, whereas genuine egg noodles contain as much as or more than one and one half eggs per pound of flour. It is to be regretted that the Department of Agriculture, Bureau of Chemistry, has not yet issued any standards in this respect. What is needed for the best work is a standard indicating the number of eggs per pound of flour which should be used in the manufacture of egg noodles. The number of eggs incorporated in the noodles should correspond very closely to that customarily used by the housewife when making this product.

Pastry Fillers and Cake Icings.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to August 1, 1913— Cake icings, etc.	3				3
August 1, 1913, to July 1, 1914— Cake icings, etc.	1	2		1	4
Totals, 1912-1914	4	2		1	7

Seven samples of pastry fillers and cake icings have been examined, the main infringements being misleading statements on the labels concerning the value of these pastry fillers and cake icings as compared with egg.

Preservatives.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Preservatives		1		5	6
August 1, 1912, to August 1, 1913— Preservatives				5	5
August 1, 1913, to July 1, 1914— Preservatives				2	2
Totals, 1912-1914				7	7

Under this heading it must not be inferred from the data here submitted that preservatives are allowed in food and food products. The data merely indicates that the preserving compounds examined were permissible under the law, in that they contain either sodium benzoate, saltpeter, or harmless compounds not prohibited by the food law.

Rice.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Rice		11	6	30	47
August 1, 1912, to August 1, 1913— Rice		2		3	5
August 1, 1913, to July 1, 1914— Rice				11	11
Totals, 1912-1914		2		14	16

The inspection of the rice, as sold or offered for sale by the dealers throughout the State, shows, with the exception of a very few cases, this product to be properly labeled—that is, if the rice is coated or polished the label so indicates. The polished rice has not the same nutritive value as the unpolished, but, like the golden yellow dried fruit, presents a better appearance to the consumer, and therefore has a ready sale.

Sago and Tapioca.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Sago and tapioca.....	9	-----	-----	4	13
August 1, 1912, to August 1, 1913— Sago and tapioca.....	-----	-----	-----	4	4
August 1, 1913, to July 1, 1914— Sago and tapioca.....	-----	-----	-----	2	2
Totals, 1912-1914	-----	-----	-----	6	6

During the biennial period, 1912 to 1914, but six samples of sago and tapioca were examined. These showed no evidences whatever of adulteration, mislabeling, or misbranding. As these articles enter largely into interstate commerce in original packages, the federal government is also inspecting and examining such products periodically.

Salt.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Salt	-----	-----	-----	2	2
August 1, 1912, to August 1, 1913— Salt	-----	3	-----	15	18
August 1, 1913, to July 1, 1914— Salt	-----	-----	-----	3	3
Totals, 1912-1914	-----	3	-----	18	21

Of the twenty-one samples of table salt which were tested at the laboratory, a large number were collected officially by the inspectors, the remainder being submitted by state institutions representing the supplies furnished them. Misbranding was found to occur in three cases due to incorrect declaration of place of manufacture and extravagant claims as to the quality of the products. As far as the purity is concerned, they all proved to be of very high grade and thoroughly satisfactory for either table purposes or dairy use.

Soapbark Preparations and Foam Producers.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1913, to July 1, 1914— Soapbark -----	4	-----	-----	1	5

Five samples of foam producers were examined with the result that only one was found not to contain saponin. The use of saponin is to be discouraged in the foam preparations. There are other compounds which are equally as good and do not contain this injurious ingredient.

Soups, Canned.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Soups, canned -----	-----	-----	-----	6	6
August 1, 1912, to August 1, 1913— Soups, canned* -----	-----	-----	-----	-----	-----
August 1, 1913, to July 1, 1914— Soups, canned -----	-----	-----	-----	1	1

*None received.

The State Laboratory has not examined canned soups or canned meats to any extent, due to the fact that these food products are manufactured by establishments which carry on interstate business. These establishments, therefore, are under federal inspection and are governed by its strict rules and regulations. Under these conditions it would be more or less a waste of time to duplicate the work carried on by the federal laboratories. More particularly is this true when it is remembered that the California law and the national law are practically identical.

Spices.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Allspice	7		10	32	49
Cayenne pepper	5		1	56	62
Cinnamon	7		2	30	39
Cloves	11		9	44	64
Curry powder				2	2
Ginger	3		3	26	32
Mace	5		8	23	36
Marjoram	6		2	3	11
Mustard	11	1	8	36	56
Nutmeg	1		2	31	34
Pepper, black	16		10	74	100
Pepper, white	5		4	47	56
Sage	1			12	13
Savory				7	7
Thyme	3		1	7	11
Miscellaneous	2		3	15	20
Totals	83	1	63	445	592
August 1, 1912, to August 1, 1913—					
Allspice			1	3	4
Cayenne pepper		2		4	6
Cinnamon				4	4
Cloves		1	1	8	10
Ginger				6	6
Mace		2		1	3
Meat seasoning				1	1
Mustard			1	14	15
Nutmeg				2	2
Paprika				1	1
Pepper, black			1	13	14
Pepper, white				4	4
Sage				3	3
Totals		5	4	64	73
August 1, 1913, to July 1, 1914—					
Allspice				5	5
Cayenne pepper	1		2	5	8
Cinnamon	1			3	4
Cloves	1		1	7	9
Ginger				5	5
Mace		1		4	5
Miscellaneous seasoning				2	2
Mustard				10	10
Nutmeg				2	2
Paprika	2			2	4
Black pepper				9	9
White pepper				3	3
Totals	5	1	3	57	66

An inspection of the figures in the above table will indicate a marked improvement in the quality and purity of the spices. It will be noticed that there are very few violations recorded for the past two years. It may be said that practically all of the old spices are off the market and that the stock found in the stores of the country merchants are of good quality and properly labeled. An exception, perhaps, to this may be found in mace. Bombay mace, a variety having very little value as a spice, is frequently substituted for true mace or mixed with true mace. This substitution should not be practiced unless the label clearly indicates this fact.

Starch.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to August 1, 1913— Starches				4	4
August 1, 1913, to July 1, 1914— Starches				6	6
Totals, 1912-1914				10	10

The data here recorded for starch was obtained by testing ten samples of this product as submitted by the different State Hospitals. Specifications were in some cases for wheat starch, in other cases, potato starch, etc. The samples submitted corresponded to the labels and met the specifications required. It might be said in this connection that probably in the future there will be a much more extended use of starch than at present. This is emphasized by the following extract from a publication by the United States Department of Agriculture:

Potato, arrowroot, and probably tapioca and sago starch pastes are not made more easily digestible by long continued cooking. On the other hand, the cereal starches are made more easily digestible by long cooking, though the change occurs very slowly and perhaps the increased digestibility is not sufficiently great to justify the trouble, under ordinary circumstances at least, for separated starch such as is used in cookery. However, in the case of starch still inclosed in cellulose cells, as in many starchy foods, the long continued cooking may be necessary. The commercial preparations of corn starch require 30 to 40 minutes' cooking because of the improvement in flavor which results.

Skin formation as well as lumps should be avoided in cooking starch—the latter contain raw starch, the former reverted amyloextrin, and both are very slow of digestion.

The selection of potato starch instead of corn or wheat starch for thickening sauces, in accordance with the custom of French cooks, is rational, since it contains no rose amylose and so forms a clearer and more digestible sauce, and since it does not require 40 minutes' boiling for improvement in flavor, as is the case with corn starch.

Sugars.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912— Sugars	3	3	8	23	37
August 1, 1912, to August 1, 1913— Sugars	1		1	9	11
August 1, 1913, to July 1, 1914— Sugars			1	14	15
Totals, 1912-1914	1		2	23	26

The examination of sugars did not reveal any adulteration in the sugars as such. The infringements noted were in connection with compounds containing sugar and acid prepared for making lemonade. In one instance, the label indicated lemon and citric acid, whereas tartaric acid was found. In two other samples, the sugar was artificially colored without such fact being indicated on the label.

Syrups.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Syrups, table	8	16	29	76	129
Syrups, flavoring	3	89	21	60	173
Totals	11	105	50	136	302
August 1, 1912, to August 1, 1913—					
Syrups, table	2	4	2	16	24
Syrups, flavoring		8	2	9	19
Totals	2	12	4	25	43
Sugars			1	14	15
August 1, 1913, to July 1, 1914—					
Syrups, table		1	4	9	14
Syrups, flavoring		4	4	2	10
Totals		5	8	11	24
Totals, 1912-1914	2	17	12	36	67

Sixty-seven samples of syrups were examined during the biennial period covered by this report. The data shows that there is still a very large percentage of mislabeling in connection with these foods, the chief infringement being that the syrups were of a lower grade than that indicated by the label. There were some cases of misbranding with reference to name and address of manufacture.

Tea.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
August 1, 1912, to August 1, 1913—					
Tea	1			90	91
August 1, 1913, to July 1, 1914—					
Tea				45	45
Totals, 1912-1914	1			135	136

The examinations of tea were undertaken as part of the cooperative work between the State Board of Health and the Board of Control, which has been previously referred to. The one sample which was adulterated, as indicated by the table, was not submitted from a state institution but was collected by an inspector. The tea was found to be colored with Prussian blue, which is in violation of the law.

Canned Vegetables.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	
January 1, 1908, to August 1, 1912— Vegetables, canned -----	-----	3	2	6	11
August 1, 1912, to August 1, 1913— Vegetables, canned -----	2	1	-----	19	22
August 1, 1913, to July 1, 1914— Vegetables, canned -----	33	1	-----	18	52
Totals, 1912-1914 -----	35	2	-----	37	74

It will be noticed that seventy-four samples of canned vegetables have been examined in the past two years. The majority of these samples were canned peas colored with copper sulfate. The sale of peas and other vegetables colored with copper sulfate was prohibited by the issuance from the United States Department of Agriculture, of Food Inspection Decisions 148 and 149. These decisions were issued as a result of the work of the referee board, the conclusions of this board being as follows:

(a) Copper salts used in the coloring of vegetables as in commercial practice can not be said to reduce or lower or injuriously affect the quality or strength of such vegetables as far as the food value is concerned;

(b) Copper salts used in the greening of vegetables may have the effect of concealing inferiority, inasmuch as the bright green color imparted to the vegetables simulates a state of freshness they may not have possessed before treatment;

(c) In attempting to define a large daily quantity of copper regard must be had to the maximum amount of greened vegetables which might be consumed daily. A daily dose of 100 grams of coppered peas or beans, which are the most highly colored vegetables in the market, would not ordinarily contain more than 100 to 150 milligrams of copper. Such a bulk of greened vegetables is so large, however, that it would hardly be chosen as a part of a diet for many days in succession. Any amount of copper above 150 milligrams daily may, therefore, be considered excessive in practice. A small quantity is that amount which in the ordinary use of vegetables may be consumed over longer periods. From this point of view 10 to 12 milligrams of copper may be regarded as the upper limit of a small quantity.

It appears from our investigations that, in certain directions, even such small quantities of copper may have a deleterious action and must be considered injurious to health.

The Food and Drugs Act of June 30, 1906, provides that a food is adulterated "if it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health." The act also provides that a food is adulterated "if it be . . . colored . . . in a manner whereby damage or inferiority is concealed." It is apparent from the findings of the referee board that all foods greened with copper salts are positively adulterated under the first above quoted provision of the law, and that in certain cases foods may be adulterated under the second above quoted provision.

Food Inspection Decision 149 reads:

Paragraph 4 of Food Inspection Decision 148 is hereby modified to read as follows:

"The secretary of agriculture, therefore, will regard as adulterated, under the Food and Drugs Act, foods greened with copper salts which, on and after January 1, 1913, are offered for entry into the United States or are manufactured or offered for sale in the District of Columbia or the territories, or which, on and after May 1, 1913, are shipped in interstate commerce."

This decision became automatically part of the California law, in accordance with section 3 of the state law. The inspectors of the State Board of Health warned the retailers concerning this matter carefully, but in many instances such warnings were not heeded. There followed, therefore, a collection of official samples and the dealers in question were

cited to appear before the State Board. The figures indicating the work of the last year proves that this activity was necessary, in that out of fifty-one samples collected thirty-three were found adulterated, that is, the peas were colored with copper sulfate. It is to be hoped that the next report will show that no more peas colored with copper sulfate are being sold.

Vinegars.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Vinegars, cider	1	14	58	245	318
Vinegars, malt		6	3	3	12
Vinegars, wine	1	3	15	23	42
Vinegars, distilled	4	12	3	42	61
Vinegars, sugar				2	2
Vinegars, miscellaneous	3	1	1	15	20
Totals	9	36	80	330	455
August 1, 1912, to August 1, 1913—					
Vinegars, cider		2	3	41	46
Vinegars, wine			1	4	5
Totals		2	4	45	51
August 1, 1913, to July 1, 1914—					
Vinegars, cider	1		13	37	51
Vinegars, wine			4	5	9
Totals	1		17	42	60
Totals, 1912-1914	1	2	21	87	111

The necessity for continued inspection and examination of vinegars is well emphasized by the table here presented. During the past two years, sixty samples of vinegar were examined, with the result that seventeen were found to be adulterated and misbranded, the adulterations in the main being due to the substitution of some other vinegar for cider vinegar, the label not indicating such substitution.

Water.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
January 1, 1908, to August 1, 1912—					
Water		53		10	63
August 1, 1912, to August 1, 1913—					
Water			2	2	4
August 1, 1913, to July 1, 1914—					
Water		3		25	28
Totals, 1912-1914		3	2	27	32

Twenty-eight samples of waters were tested at the State Laboratory from August, 1912, to July, 1914. The samples submitted included those from city water supplies, mineral waters, well waters, etc. The infringements noted, three in number, were due to false statements, on the labels, concerning either the origin or the character of the water.

MISCELLANEOUS MATERIALS.**Blankets.**

The examination of blankets was undertaken as part of the cooperative work between the State Board of Health and the State Board of Control in the matter of examining supplies furnished to state institutions. Seventy-one samples of blankets were submitted during the biennial period covered by this report. Of these, twenty-one failed to meet the specifications in that they contained upwards of thirty per cent of cotton, such percentages ranging from thirty-four to seventy-two. It is understood that for certain purposes, a cotton blanket is to be preferred to a woolen blanket, but when specifications call for a blanket containing not more than thirty per cent of cotton, the blankets submitted should be in accordance with such data.

Coal.

Seven samples of coal were submitted from state institutions with the result that all were found to meet specifications. The samples represented first class articles.

Cutlery.

The laboratory has received eleven samples of cutlery—knives, forks, and spoons—from state institutions. The examinations indicated that only one was deficient in the amount of nickel called for in the specifications, in that the sample contained six per cent, whereas the specifications call for not less than ten.

Lubricating Oils.

Forty samples of oil were submitted by different state institutions to the laboratory for examination, the results of the chemical tests showing thirty to meet the specifications, while ten were deficient in that the flash point was lower than it should have been, indicating a poorer quality of oil.

Soaps.

The laboratory has examined eight different samples of soaps, soft and hard, including washing and toilet soaps, with the result that all were found to fully meet the requirements specified by the State Board of Control.

Factory Wastes.

Eighteen samples of factory wastes were examined during the past two years. Of these thirteen were submitted by the State Fish and Game Commission. The analyses were made to determine the presence or absence of appreciable amounts of crude oil, lampblack, and tar. These wastes were discharged into San Francisco Bay and therefore it was necessary to conduct the examinations just referred to in order to determine whether or not the state law, which prohibits the depositing of certain materials injurious to fish into the bay, was being violated. All samples examined were found to contain either lampblack or crude petroleum or both.

Sewage.

During the first year of the biennial period, nine samples of sewage were examined, representing cooperative work between the city of Stockton and the State Board of Control. This was to determine the chemical composition of the sewage of the city of Stockton in connection with a comprehensive examination of such sewage by the American Engineering Corporation of San Francisco, C. E. Grunsky, president.

Reagents.

Another small piece of cooperative work in connection with chemical analyses, was the testing of seven samples of reagents used in water analysis for the department of health of the city of Stockton. Four of these were found to meet the requirements, while three did not.

**SUMMARY OF MISCELLANEOUS MATERIALS.
1912-13.**

Material	Number not com- plying with specifica- tions	Number complying with specifica- tions	Total
Blankets	10	27	37
Coal		7	7
Cutlery	1	10	11
Oils, mineral and lubricating.....	10	13	23
Reagents	*4	3	7
Soaps		8	8
Totals	25	68	93

*Below standard.

1913-14.

Blankets	11	23	34
Oils, mineral and lubricating.....			17
Totals	11	23	51

**Wastes and Sewages.
1912-13.**

Sewages			9
Wastes			15

1913-14.

Wastes			3
--------------	--	--	---

**GENERAL SUMMARY MISCELLANEOUS MATERIALS.
1912-14.**

Totals	36	135	171
Per cent	21.06	78.94	100

Drugs.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Drugs Act	Total
January 1, 1908, to August 1, 1912—					
Alcohol				9	9
Alum	1			2	3
Arnica		11		2	13
Asafoetida		1	1		2
Benzoin, tincture		4			4
Bay rum		1		2	3
Camphorated oil	12			15	27
Camphor, spirits of		18		2	20
Citrate of magnesia				7	7
Colic remedies, etc.		13		1	14
Consumption cures		3			3
Corn remedies		2		2	4
Cough remedies, cold cures		69		9	78
Cream of tartar				4	4
Epsom salt, etc.				11	11
Fluid extracts, etc.		3		5	8
Ginger, Jamaica		15	1	2	18
Green soap, tincture		2		1	3
Headache remedies		105		14	119
Hydrochloric acid				3	3
Hydrogen, peroxide				3	3
Iodine, tincture		11		2	13
Kidney cures		9			9
Licorice root				5	5
Lime water	2				2
Liniments		3		2	5
Lung remedies		8			8
Medicinal herbs	38			78	116
Miscellaneous	8	115	4	72	199
Nux vomica				3	3
Paregoric		18		4	22
Peppermint	1	7	1		9
Sulfur	7			7	14
Sweet spirits of nitre		12			12
Tinctures, miscellaneous		10	4	9	23
Witch hazel		12		5	17
Total drugs	69	452	11	281	813
Per cent	8.5	55.6	1.3	34.6	100
August 1, 1912, to August 1, 1913—					
Aconite tincture				2	2
Alcohol				2	2
Borax				1	1
Castoria				1	1
Cough remedies				2	2
Cream tartar				1	1
Essence of Jamaica ginger			1		1
Headache remedies		1		2	3
Liniment				1	1
Eucalyptus oil				3	3
Malt tonic		1		1	2
Turpentine	1			3	4
Witch hazel	1				1
Miscellaneous			1	2	3
Totals	2	2	2	21	27
Per cent	7.41	7.41	7.41	77.77	100

Drugs—Continued.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Drugs Act	Total
August 1, 1913, to July 1, 1914—					
Aloes, Soc., U. S. P.				2	2
Ammonia, aromatic spirits of			27	3	30
Arnica, tincture of				1	1
Asafoetida		2		1	2
Asperin tablets				1	1
Benzoin				2	2
Calisaya, elixir				1	1
Camphor, spirits of	3		8	8	19
Camphorated oil			4	4	8
Cardamon compound, tincture				1	1
Cinchona, tincture of				3	3
Corn remedies		4		6	10
Cough remedies				1	1
Ginger, essence of Jamaica			6		6
Hair tonics	1	1			2
Horehound drops				1	1
Iodine, tincture of			2	1	3
Iron, tincture of				1	1
Laxative bitters		1			1
Leaves, buchu			2	2	4
Lime water			1	8	9
Linseed meal				1	1
Magnesia, solution citrate of				10	10
Miscellaneous		3		9	12
Nitre, sweet spirits of			26	7	33
Nux vomica, tincture				3	3
Rubbing oil				1	1
Paregoric		1		2	3
Peppermint, essence of			1		1
Pepsin				14	14
Peroxide of hydrogen				1	1
Potash, chlorate of				2	2
Rheumatic powder				1	1
Salts, epsom			6	24	30
Tonics		1	2	1	4
Wart solvents		2			2
Zinc oxide				1	1
Totals	4	13	87	123	227
Per cent	1.8	5.7	38.2	54.3	100

The reports of the visits of drug inspectors during the last year would indicate that the conditions are greatly improved. The improvement may be noted along several different lines.

(1) With reference to labeling: The labels for nearly all the drugs are now in accordance with the provisions of the California Drugs Act. It is true there are exceptions.

(2) The crude drugs, such as herbs, etc., are in far better condition at present writing than was instanced two years ago. Statements have been published to the effect that a large proportion of the herbs now on sale in the drug stores are wormy and unfit for use. The reports of the drug inspectors made to the State Laboratory would certainly appear to refute absolutely such statements.

(3) Old proprietary remedies and new, are labeled in accordance with the provisions of the drugs acts, both state and federal.

The tables here presented, while indicating the numbers of drugs and those which conform to the law, do not represent the total work which has been accomplished along this line. A con-

siderable number of alkaloidal drugs have been tested, but the examinations were not completed in time to be included in this report. It may be said, though, in advance, that the results of such examinations indicate that these important drugs conform to the usually accepted standards for such remedies. It has been stated by some that these drugs, now sold in California, are not up to standard, but considerably below. Examinations made at the State Laboratory do not confirm such statements. The data in connection with the examination of drugs included in the last report and summarized in the above tables, indicate that over one hundred samples of headache remedies were examined, with the result that nearly all were found to be mislabeled. As a result of this activity shown by the laboratory in the examination of these remedies, it is a difficult matter for the inspector to find any of these remedies now mislabeled. The mislabeling consisted in the failure of the manufacturer to indicate on the label the use of certain drugs, in the preparation of the remedy, such as phenacetin, acetanilide, etc.

An inspection of the figures, showing the percentages of infringements, etc., for the last biennial period and those heretofore recorded, indicates that the percentage of drugs conforming to the law is increased 100 per cent. The data for the previous report shows that only about 25 per cent of the drugs examined conformed in all respects to the law. The corresponding figure for the last biennial period is in excess of 50 per cent. The improvement, however, is really greater than that indicated by the figures in the table, for the reason that the inspectors exercise a certain amount of discretion in the collection of samples and submit to the laboratory only those which are suspected of being adulterated or misbranded. In former years samples were submitted without the use of such discretion in order to ascertain the exact condition of the different remedies and drugs as sold.

A large number of samples of spiritus ætheris nitrosi and spiritus ammoniæ have been collected and examined. The results are not ready for presentation at this time. There has been considerable criticism made in connection with this investigation on the ground that both sweet spirit of nitre and aromatic spirit ammonia were of such volatile nature that it was impossible to have them retain their strength, in accordance with the standard, for any length of time. The answer to such criticisms is that these are two very important drugs, and, while they are of a volatile nature, the loss will not be as great as is claimed by any means, if the drug is prepared and kept in accordance with the directions given in the United States Pharmacopœia. Such preparations should not be kept for any length of time. New batches should be made up periodically.

The report of the Food and Drug Commissioner of Michigan for 1913, contains results of an investigation on the deterioration of spirits of nitrous ether. The details of this report are exceedingly interesting and important and it therefore appears that it would not be out of order to reprint the data here.

Spirits of nitrous ether or commonly called spirits of nitre, is defined by the 5th revision of the United States Pharmacopœia as "An alcoholic solution of ethyl nitrite yielding, when freshly prepared and tested by the method given in the U.S.P., not less than 4 per cent of the ethyl nitrite.

That this 4 per cent of ethyl nitrite is easily lost under improper conditions is a matter of common knowledge among those who have anything to do with this preparation. Reports of various state departments charged with the enforcement of the

drug laws show that this preparation has caused more or less trouble. It appears that the fault lies mainly in the manner in which it is stored. In the state of Michigan the records of the laboratory show that during the year of 1912 over 75 per cent of the samples examined were found to fall below the required standard of the U.S.P. When some of the manufacturers of these preparations were asked to explain why their spirits of nitrous ether did not conform to the U.S.P. their reply was that it is impossible to keep such a volatile preparation for any length of time and have it of standard strength. However, investigation into the manner in which such pharmacists stored their preparations generally disclosed the fact that they were not keeping it in strict accordance with the U.S.P. directions; only making a half-hearted attempt, if making any at all, to store it as their pharmacopoeia told them to.

In order that we might enlighten these people, this laboratory started an experiment some time ago, to determine the keeping qualities, so to speak, of spirits of nitrous ether. The plan of the experiment was to duplicate as nearly as possible conditions as may be found in any medium class drug store, by selecting bottles of various sizes and colors, by storing in a semi-dark place and at a temperature that could not be called cool. Thus it will be seen that the directions of the U.S.P. were not followed to the letter but were only attempted and carried out in an incomplete manner.

The experiment was conducted as follows: On March 5, 1911, a quantity of spirits of nitrous ether was made up and placed in seven bottles. The bottles used were ordinary half pound and one pound bottles, two of which were of amber glass, one green glass, and four flint glass bottles, such as may be found in any drug store. Each bottle when filled was securely fitted with an ordinary cork stopper. The bottle was then thoroughly shaken and an assay made of its contents.

The bottles were again securely stoppered and placed in a semi-dark place in a room adjoining the working laboratory, the temperature of which is about the same as that in the laboratory, viz., 65 degrees—75 degrees F. At the end of three months the bottles were removed and the contents assayed. This procedure was continued for a period of fifteen months, assaying the contents of the bottles at intervals of three months each, except the time between the fourth and fifth assays, when a period of four months elapsed, and the results tabulated in the following table:

TABLE I.

Size of bottle	Kind amber	First assay, March 5, 1911. Time of filling	Second assay, June 5, 1911	Third assay, Sept. 5, 1911	Fourth assay, Nov. 5, 1911	Fifth assay, March 5, 1912	Sixth assay, June 5, 1912
1. 12 ounce -----	Amber	3.98	3.95	3.83	3.73	3.70	3.56
2. 12 ounce -----	Amber	3.99	3.86	3.73	3.61	3.53	3.45
3. 16 ounce -----	Green	3.95	3.88	3.81	3.71	3.66	3.60
4. 8 ounce -----	Flint	3.97	3.68	3.52	2.14	2.14	1.88
5. 8 ounce -----	Flint	3.94	3.77	3.42	3.41	1.25	-----
6. 16 ounce -----	Flint	3.95	3.72	3.42	3.42	3.20	2.94
7. 8 ounce -----	Flint	3.92	3.39	3.39	3.10	3.10	2.89

TABLE II.

Loss at end of—	2 months. 7 samples	6 months. 7 samples	9 months. 7 samples	12 months. 7 samples	15 months. 6 samples
Maximum -----	0.53	0.53	1.83	2.69	2.09
Minimum -----	0.03	0.14	0.25	0.28	0.35
Average -----	0.207	0.37	0.65	1.01	0.90

TABLE III.

Loss of samples stored in colored bottles at the end of—	3 months	6 months	9 months	12 months	15 months
Maximum -----	0.13	0.26	0.38	0.46	0.54
Minimum -----	0.03	0.14	0.25	0.28	0.35
Average -----	0.07	0.18	0.29	0.34	0.44

A study of the table will show that for the first six months the samples retained their strength very well, the maximum loss under these conditions being only .53 per cent with an average for the whole of only .37 per cent. The greatest loss during the entire time seems to be in the samples stored in the flint glass bottles, although with the exception of sample 4 the remainder kept fairly well for the first nine months. During the latter part of the experiment, however, the samples in the flint glass bottles decreased considerably, while those in the amber and green colored bottles decreased in strength only a small amount in the whole fifteen months and the decrease was quite regular; the maximum being but .54 per cent with an average of .44 per cent. It would therefore appear that spirits of nitrous ether, when manufactured properly so that it will contain 4 per cent ethyl nitrite when freshly prepared and stored in small dark colored bottles in a cool place will remain standard strength for a long period of time. The pharmacist should make up this preparation in such quantity that the whole can be disposed of in a period of six months. He then should have no fear that he is not dispensing a U.S.P. article all the time.

This laboratory is conducting a similar set of experiments which we confidently expect will confirm the results of the Michigan laboratory. This laboratory is also studying the deterioration of aromatic spirits of ammonia. The full details of this investigation will be published in the next report and also in The Monthly Bulletin of the State Board of Health as soon as the investigation is completed. As far as the experiment has progressed, seven weeks, it would appear that during the first ten days there was a loss of less than one per cent, and during the last five weeks there has been practically no loss whatever. In other words, the strength has remained constant and the loss for the seven weeks of the experiment has therefore been less than one per cent. This is greatly in contrast with the results of the examination of samples collected by inspectors, the majority of which show a loss of from 25 to 75 per cent. Such deficiencies are due to carelessness in the manufacture and keeping of the drug, in other words, not following out the directions of the United States Pharmacopœia.

SUMMARY OF ANALYTICAL WORK.

August 1, 1912, to July 1, 1914.

The results of the chemical and microscopical work of the State Laboratory for 1912-1914 are summarized in the subjoined tables:

A. FOODS AND FOOD PRODUCTS.
1912-1913.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
Baking powder		2		23	25
Baking soda				4	4
Beer		2		2	4
Beverages		6	9	20	35
Breads			7	3	10
Butter		2	2	3	7
Cereals				7	7
Cheese		1			1
Chocolate and cocoa		1	15	3	19
Coffee			3	116	119
Coffee compounds			1	1	2
Coffee substitutes		4		27	31
Colors	2			2	4
Condiments—					
Catsup		5		9	14
Worcestershire sauce		1		1	2
Pickles		1		1	2
Mustard preparation		1		1	2
Gru's sauces		2		1	3
Miscellaneous				3	3
Confectionery		5		19	24
Corn				2	2
Cream				4	4
Eggs	6	21		28	55
Egg substitutes	3				3
Extracts—flavoring	2	9	20	48	79
Fish		3		15	18
Flour				72	72
Fruit	2	3		11	16
Honey				5	5
Ice cream		5	10	82	97
Ice				7	7
Jams and jellies		1	2	12	15
Lard			1	2	3
Liquors		2	6	13	21
Meats—					
Chopped	17			46	63
Pork sausage	2	1	50	36	89
Canned				2	2
Bologna sausage		7		8	15
Frankfurter sausage	1	15	1	14	31
Miscellaneous		4		5	9
Milk				5	23
Milk, certified		4		18	4
Buttermilk, dry				1	1
Milk, evaporated	2	1	2	38	43
Oils, edible		1		22	23
Pastes		5	4	10	19
Preservatives				5	5
Rice		2		3	5
Sago and tapioca				4	4
Salt		3		15	18
Spices		5	4	64	73
Starch				4	4
Sugars	1		1	9	11
Syrups, table	2	4	2	16	24
Syrups, flavoring		8	2	9	19
Tea	1			90	91
Vegetables	2	1		17	20
Vinegars—					
Cider		2	3	41	46
Wine			1	4	5
Water			2	2	4
Total foods	43	140	153	1,030	1,366
Per cent	3.1	10.2	11.2	75.5	100

B. DRUGS.
1912-1913.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Drugs Act	Total
Aconite tincture				2	2
Alcohol				2	2
Borax				1	1
Castoria				1	1
Cough remedies				2	2
Cream tartar				1	1
Essence of Jamaica ginger			1	1	1
Headache remedies		1		2	3
Liniment				1	1
Eucalyptus oil				3	3
Malt tonic		1		1	2
Turpentine	1			3	4
Witch hazel	1				1
Miscellaneous			1	2	3
Total drugs	2	2	2	21	27
Per cent	7.41	7.41	7.41	77.77	100

C. GENERAL SUMMARY.
1912-1913.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food and Drugs Act	Total
Total food samples	43	140	153	1,030	1,366
Total drug samples	2	2	2	21	27
Grand total	45	142	155	1,051	1,393
Per cent	3.2	10.2	11.1	75.5	100

D. FOODS AND FOOD PRODUCTS.
1913-1914.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food Act	Total
Baking powder		1		7	8
Baking soda				2	2
Beverages	1	1	4	5	11
Breads		1	3	1	5
Butter	1	3		2	6
Cereals and cereal products				14	14
Cheese		1		1	2
Chocolate and cocoa	1		11	6	18
Coffee			1	41	42
Colors				1	1
Condiments—					
Catsup		2		13	15
Chow chow				1	1
Horseradish				2	2
Mayonnaise				2	2
Mustard		2		2	4
Pickles	1	1		4	6
Relishes				2	2
Sauces	1	1		5	7
Tomato puree				2	2
Apple butter				1	1

REPORT OF THE STATE BOARD OF HEALTH.

D. FOODS AND FOOD PRODUCTS—Continued.
1913-1914.

Material	Number adulterated	Number misbranded	Number adulterated and mis- branded	Number not in violation of California Pure Food Act	Total
Confectionery	2			7	9
Corn				1	1
Cream				2	2
Eggs	2	8		18	28
Egg substitutes			1	3	4
Extracts—flavoring	1	11	24	35	71
Fish, shellfish, etc.	1			2	3
Flour		3		53	56
Fruit	1			12	13
Honey				4	4
Ice cream		2		18	20
Jams and jellies		3	1	27	31
Lard				2	2
Liquors	1	4	8	10	23
Meats—					
Chopped	17	1		46	64
Pork sausage	3	2	4	26	35
Bologna sausage				3	3
Frankfurter sausage		1		2	3
Chicken tamale				4	4
Miscellaneous	1	1		3	5
Milk			3	5	8
Milk, evaporated			12	8	20
Miscellaneous materials				2	2
Oils, edible				7	7
Pastes		2	9	13	24
Pastry filler	1	2		1	4
Preservatives				2	2
Rice				11	11
Sago and tapioca				2	2
Salt				3	3
Soapbark	4			1	5
Soups, canned				1	1
Spices	5	1	3	57	66
Starch				6	6
Sugars			1	14	15
Syrups—					
Table		1	4	9	14
Flavoring		4	4	2	10
Tea				45	45
Vegetables	33	1		17	51
Vinegars—					
Cider	1		13	37	51
Wine			4	5	9
Water		3		5	8
Total foods	78	63	110	645	896
Per cent	8.7	7.0	12.3	72.0	100

E. DRUGS.
1913-1914.

Material	Number adulterated	Number misbranded	Number adulterated and mis- branded	Number not in violation of California Pure Drugs Act	Total
Aloes, Soc., U. S. P.				2	2
Aromatic spirits of ammonia			27	3	30
Arnica, tincture of				1	1
Asafetida			2		2
Asperin tablets				1	1
Benzoin				2	2
Calisaya, elixir				1	1
Camphor, spirits of	3		8	8	19
Camphorated oil			4	4	8
Cardamon compound, tincture				1	1
Cinchona, tincture of				3	3
Corn remedies		4		6	10
Cough remedies				1	1
Ginger, essence of Jamaica			6		6
Hair tonics	1	1			2
Horehound drops				1	1
Iodine, tincture of			2	1	3
Iron, tincture of				1	1
Laxative bitters		1			1
Leaves, buchu			2	2	4
Lime water			1	8	9
Linseed meal				1	1
Magnesia, solution citrate of				10	10
Miscellaneous		3		9	12
Nitre, sweet spirits of			26	7	33
Nux vomica, tincture				3	3
Rubbing oil				1	1
Paregoric		1		2	3
Peppermint, essence of			1		1
Pepsin				14	14
Peroxide of hydrogen				1	1
Potash, chlorate of				2	2
Rheumatic powder				1	1
Salts, Epsom			6	24	30
Tonics		1	2	1	4
Wart solvents		2			2
Zinc oxide				1	1
Totals	4	13	87	123	227
Per cent	1.8	5.7	38.2	54.3	100

F. SUMMARY.
1913-1914.

Material	Number adulterated	Number misbranded	Number adulterated and misbranded	Number not in violation of California Pure Food and Drugs Act	Total
Total food samples.....	78	63	110	645	896
Total drug samples.....	4	13	87	123	227
Grand total	82	76	197	768	1,123
Per cent	7.3	6.8	17.5	68.4	100

G. SUMMARY.
1912-1914.

Total food samples.....	121	203	263	1,675	2,262
Total drug samples.....	6	15	89	144	254
Grand total	127	218	352	1,819	2,516
Per cent	5.0	8.7	14.0	72.3	100

H. SUMMARY MISCELLANEOUS MATERIALS.
1912-1914.

Material	Number not complying with specifications	Number complying with specifications	Total
Totals, miscellaneous materials.....	36	135	171
Per cent	21.06	78.94	100

It is encouraging to note in connection with the general summary for 1912 to 1914, above indicated, that the percentage of samples complying with the law is 72.3, which is far higher than any corresponding figure reported since the establishment of the laboratory (see Table I). The percentage of adulteration is low and similarly, with reference to the percentage of misbranding. It is true that the percentage of adulteration and misbranding is slightly higher than that noted for the previous year. One of the main food products which has caused this increase is pork sausage, the infringement consisting of a substitution of other meats for pork and the presence of cereals not stated on the label. This was the condition of affairs in 1912 and 1913. During the following year, 1913-1914, very few cases of misbranding were noted, indicating a marked improvement in this respect. The improvement just referred to is emphasized when we repeat statements that have been made in the foregoing data to the effect that inspectors, both food and drug, exercise far greater discretion in the submitting of samples than was possible in former years.

The following table shows the percentage of adulteration and misbranding for the seven years, 1908 to 1914. It will be noted by an inspection of the figures that with the exception of the year from 1910-1911, there has been a steady decrease in the percentage of adulteration and misbranding, and therefore, an increase in the percentage of samples complying in all respects with the Food and Drugs Act.

I. GENERAL SUMMARY, 1908-1914.
Food and Drugs.

	Per cent adulter- ated	Per cent mis- branded	Per cent adulter- ated and mis- branded	Per cent complying with the law	Total
To August, 1908	20.9	9.0	13.0	57.1	100
To August, 1909	9.7	22.8	9.9	57.6	100
To August, 1910	5.9	21.1	14.6	58.2	100
To August, 1911	14.3	36.1	2.4	47.2	100
To August, 1912	4.8	15.6	12.2	67.4	100
To July, 1914	5.0	8.7	14.0	72.3	100

It might not be out of place to repeat here a paragraph mentioned in the last report.

"While it is now generally understood that the names of certain definite substances must appear on the label, there are still many other instances in which some manufacturers and dealers think that a substance that is *allowed* need not be mentioned. This is especially true of such things as benzoate of soda, permissible artificial colors and flavors, and the addition of cereal to meat food products, etc.

"It is becoming more evident every year that the cases of wilful violation of the law are very few, and that there is very little tendency to backsliding on the part of those who have once succeeded in bringing their products up to standard."

Conclusions and Recommendations.

While, as has been stated in previous reports and also in this report, that the quality and standard of food and drugs is increasing, it is only possible to keep on improving in this direction by constant and continued field and laboratory work. Without doubt, if the laboratory was discontinued we would have on the markets in a very short time, the same kind and quality of foods and drugs which were to be found galore previous to January, 1907, and for some time later. The necessary activity, however, can not be carried on without proper funds for the employment of inspectors, chemists, etc., and for properly maintaining a laboratory. The necessary work may therefore be divided into three heads—field work, laboratory work, and office work. The following itemized statement indicates the minimum which should be allowed, not, by any means, the maximum:

	Estimate 1915- 1917
Field work—	
Eight food and drug inspectors, salary	\$23,000
Expenses of inspectors for traveling, purchasing samples, etc.	15,000
Laboratory work—	
Three analytical chemists, salary	10,600
Chemical apparatus and supplies	4,000
Laboratory help, janitor work, etc.	1,200
Office work—	
Stenographers, two	5,600
Clerk	1,200
Stationery, stamps, expressage, telephone service, etc.	1,500
Total	\$62,100

This amount, \$62,100, does not include the salary of the director or assistant to the director, as these salaries are not included in the special appropriation but are paid for as are other state salaries.

A state like California should have at the command of the State Food and Drug Laboratory at least twelve inspectors, not eight as asked for. There should be at least six chemists working in the laboratory and the office force should also be increased.

The above estimate, however, does not include any item for building. The present quarters of the State Food and Drug Laboratory are far too limited for proper or extensive work. There should be at the disposal of the bureau at least twice the laboratory space now available.

It must be repeated, and with enforced emphasis, the necessity for the carrying on of research work in a food and drug laboratory in addition to the necessary routine work incidental to the examination and analysis of samples officially submitted. There are a very large number of problems in food and drug chemistry and nutrition which should be solved by the personnel of a food laboratory, particularly when operated under the auspices of the State Board of Health. Until such work is carried on, it would not appear that the laboratory is fulfilling its best purpose.

REPORT OF BUREAU OF HYGIENIC LABORATORY.

By W. A. SAWYER, M. D., Director.

The Development of the Laboratory.

During the two years ending June 30, 1914, the number of routine bacteriological examinations performed at the State Hygienic Laboratory in the interest of the public health was 75 per cent greater than during the previous biennial period. The more expensive and time-consuming examinations increased in number at a still faster rate. For instance, the number of examinations of drinking water for pollution was doubled, and over three times as many heads of animals were examined for evidence of rabies.

The increase in the quantity of the work, while it shows a greater appreciation of the services of the laboratory by local health officials and physicians, does not represent the progress in the adaptation of the laboratory to the needs of the state so much as do the new functions. During the biennial period, by the performance of free Wassermann tests at the State Hygienic Laboratory, syphilis has at last been recognized as a very important preventable disease. Recognizing that the provisions for the control of typhoid fever are at present inadequate to give reasonable protection to a large part of the citizens of the state, the manufacture and free distribution of antityphoid vaccine was instituted, so that the individual can to a certain extent make up for the failure of protection by the public.

Although the work of the bureau has developed, it still falls far short of its proper variety and amount. The lack of workers in the field along lines of epidemiology and sanitary engineering greatly hampers the laboratory work in communicable diseases and water pollution, and renders much of the work unsatisfactory. The majority of the local health officials have insufficient time and not enough special training in public health to act helpfully as our local representatives. This is due principally to the ridiculously small salaries offered. Until health officers are full-time public servants with special training we can not expect a marked decrease in preventable disease, but the state can do a great deal through maintaining marked efficiency and high scientific standards in the laboratories and field forces of this bureau. The most urgent lines of development will be outlined under the separate headings of this report.

Division of Biological Examinations.

In the Division of Biological Examinations is done the greater part of the present work of the bureau. At the main laboratory in Berkeley and its three branches in Los Angeles, Fresno, and Sacramento, various diagnostic examinations are made which are of importance in the control of communicable disease. The work is strictly limited to examinations of public health interest, and tests of value only to individuals are not performed, not even in response to the plea of charity. The laboratory has only one purpose, the protection of the public health.

The work of the division includes the examination of tissue for anthrax, of swabs and cultures for diphtheria, of smears of pus for gonococcus infection, of feces for hookworm disease, of blood for ma-

laria, of tissue for plague, of brain tissue for rabies, of blood serum for syphilis (Wassermann test), of sputum for tuberculosis, of blood for typhoid fever (Widal test), and occasionally of other specimens which have a distinct bearing on public health. The staff of the laboratory are not permitted to work privately for fees, and all the examinations at the laboratory are made without charge.

In addition to the diagnostic tests, many bacteriological examinations of public water supplies for pollution are performed with the purpose of protecting against water-borne diseases, especially typhoid fever.

The laboratory is increasing its usefulness to our state institutions. It performs tests of their water supplies on request. A considerable number of the routine diagnostic tests are performed for state institutions, especially the infirmary of the University of California. Wassermann tests for syphilis have been performed for many of the prisoners in the state prisons at Folsom and San Quentin. Examinations for anthrax and rabies are performed for the State Veterinarian and his deputies. These very necessary examinations would involve considerable expense if performed by private bacteriologists.

Comparison with the Work of Preceding Biennial Periods.

In Table I there has been brought together the statistics for the several biennial periods since the beginning of the laboratory on July 1, 1905. Special attention is called to the growth of the work of the last biennial period over that of the preceding one. There was an increase of 75 per cent in the total number of tests in the Division of Biological Examinations. Every kind of examination shared in the increase.

Results of Examinations by Months and Diseases.

In Table II are brought together the numbers of examinations made in the division during the various months of the biennial period ending June 30, 1914. The number of examinations giving positive results are shown as well as the total numbers.

TABLE I.
Increase in Number of Examinations, July 1, 1905, to June 30, 1914.

	Anthrax	Diphtheria	Gonococcus infection	Hook-worm	Malaria	Plague	Rabies	Syphilis	Tuberculosis	Typhoid	Water pollution	Miscellaneous	Total
First year of the laboratory, July 1, 1905, to June 30, 1906.....		330				1			54	32	67	96	1,590
Biennial period, July 1, 1906, to June 30, 1908.....		1,231				13			255	185	57	504	2,245
Biennial period, July 1, 1908, to June 30, 1910.....		2,793			58		37		497	330	95	145	3,955
Biennial period, July 1, 1910, to June 30, 1912.....	27	2,267	46	9	88	5	243		716	667	136	69	4,273
Biennial period, July 1, 1912, to June 30, 1914.....	85	3,337	353	15	194	7	770	142	908	1,242	309	150	7,512
Totals	112	9,958	399	24	340	26	1,050	142	2,430	2,456	664	964	18,565

¹One year only.

²Exclusive of 5,009 diphtheria examinations made in special examinations of school children in Berkeley, Oroville, Hayward and Colfax.

³Exclusive of 1,844 examinations of rats from Berkeley. The expense was borne by Berkeley.

⁴Exclusive of 6,325 diphtheria examinations made in special examinations at the Southern California State Hospital.

Anthrax.

Examinations are frequently made for anthrax in animals, and rarely for the same disease in man. A single specimen is sometimes sent for the determination of the nature of a disease which is killing hundreds of animals. Whenever anthrax is found to be present in the tissues of an animal, the State Veterinarian is given a carbon copy of the laboratory report, so that the information may have its greatest usefulness in the control of this disease.

Diphtheria.

This disease continues to present a serious problem in the state. The laboratory distributes a mailing outfit for sending to the laboratory swabs from the noses and throats of patients or carriers. The results of the examinations are communicated to the physician and also to the local health officer, who has charge of instituting and raising the quarantine required by law. The cultures are examined at the main laboratory at Berkeley and also at the three branches.

Gonococcus Infections.

There has been an increase in the number of specimens examined for the presence of the gonococcus. When the health authorities will give this disease the attention which is indicated by its prevalence and destructiveness, the diagnosis of gonorrhea and ophthalmia neonatorum will cease to be in so many cases a matter of opinion, and the laboratory will receive many times the present number of specimens.

Hookworm.

The laboratory stands ready to examine specimens of feces for hookworm and to furnish containers in which samples can be mailed.

Malaria.

Special mailing cases containing two glass slides and directions for securing samples of blood are furnished to physicians. The number of examinations from the districts of California in which malaria is prevalent are few, as many physicians are satisfied with the diagnosis of malaria based on symptoms alone.

Bubonic Plague.

During the biennial period three cases of plague in man were investigated and were proved to be bubonic plague. All of the cases were undoubtedly contracted from endemic plague existing among the ground squirrels, and possibly other rodents, of the region in which the cases appeared.

Case 1.—A Japanese woman, 24 years old, living on a berry farm two miles north of San Juan in San Benito County, became sick on June 4, 1913. On June 6th she was first seen by a physician. At that time there was marked prostration, high fever (104° F.), and a painful left femoral bubo. Her condition became steadily worse and she died on June 13th. On the day before her death a severe sore throat developed accompanied by dyspnea. On this day the case was seen by the county health officer. The bubo was operated upon and some of the glandular tissue was sent to the State Hygienic Laboratory. Examination at the laboratory showed bacilli having the appearance of the plague bacillus. A guinea-pig was inoculated. The animal died in six days, and the plague bacillus was isolated from the typical lesions and identified. A

parallel laboratory examination in the laboratory of the United States Public Health Service in San Francisco gave the same results. An investigation was made in the field by the director of the State Hygienic Laboratory.

A hunter employed by the United States Public Health Service shot a plague-infected squirrel in San Benito County, six miles northeast from Hollister, on June 9, 1913, showing that the disease existed in ground squirrels in the county at the time of the human case.

Case 2.—A man, J. W. K., 55 years old, entered the Contra Costa County Hospital at Martinez on September 8, 1913. He had been working on a ranch near Pittsburg, Contra Costa County. His illness became rapidly worse. He was delirious on September 9th and, on the following day, a femoral bubo with considerable local edema developed. He died in the morning of September 11th. The diagnosis of plague was made by the attending physician. A local investigation was made by Surgeon Currie of the United States Public Health Service. Material from the bubo was obtained for examination at the State Hygienic Laboratory.

At the State Hygienic Laboratory plague bacilli were demonstrated and definitely identified by microscopical examination, cultural tests, and animal inoculation. A similar investigation in the laboratory of the United States Public Health Service gave the same results.

Surgeon Currie reported that there were circumstances which pointed to infection from the rats in and about the house in which the man had slept on the ranch. The rat infection was undoubtedly secondary to the squirrel epizootic of plague which had been present for several years in Contra Costa County.

Case 3.—A man, E. W. H., 38 years old, residing in Walnut Creek, Contra Costa County, and working in San Francisco, became sick at Walnut Creek on May 17, 1914. He had a chill, high fever (104° F.), and slight delirium. On the following day the case was investigated locally by Assistant Surgeon N. E. Wayson of the United States Public Health Service. A left femoral bubo had appeared on that day. On May 23d the patient was again seen by Dr. Wayson, and material was obtained from the bubo for laboratory examination. The plague bacillus was isolated and identified at the laboratory of the United States Public Health Service. Tissues from a guinea-pig, inoculated by Dr. Wayson with a culture from the bubo, were sent to the State Hygienic Laboratory, where the plague bacillus was isolated and identified by microscopic and cultural tests and animal inoculation.

Investigation by Dr. Wayson led to the conclusion that the disease had been contracted from plague-infected ground squirrels in the vicinity of Walnut Creek, Contra Costa County. The patient recovered from the infection.

Rabies.

Taking the state as a whole, rabies (hydrophobia) in animals has increased markedly during the biennial period. In certain areas the disease has diminished while in others it made its first appearance.

The heads of animals are sent to the laboratory and the brain tissue is examined for evidence of rabies. This work is specially important, as many of the rabid dogs bite human beings, and the decision with regard to the necessity for Pasteur treatment of persons bitten by dogs often hinges on the laboratory examination. Table III gives the statistics for the examinations for rabies by months and Table IV gives the number of specimens showing positive evidence of rabies from each county.

TABLE III.
Examinations for Rabies by Months.

Month	Results of examinations				Positive diagnosis based on		Animals found positive				Persons reported bitten by positive animals.
	Positive	Negative	Inconclusive	Total	Finding of nerve bodies	Animal inoculation	Dogs	Cats	Humans	Other animals	
1912											
July	12	4	1	17	12		10		2		8
August	19	8	2	29	12	7	16	2		1 cow	13
September	15	1	3	19	12	3	15				13
October	19	4	1	24	19		17	1		1 cow	17
November	30	3		33	28	2	29	1			17
December	36	1		37	35	1	30	2	1	1 goat, 1 pig, 1 horse	20
1913											
January	22	1		23	19	3	20			1 cow, 1 horse	11
February	28			28	27	1	26		1	1 pig	21
March	33	2	1	36	33		26	3		2 cows, 1 goat, 1 horse	21
April	27	1		28	26	1	22			1 coyote, 3 cows, 1 goat	13
May	22	4	3	29	22		15	1	2	4 cows	11
June	23	7		30	23		23				12
July	23	1	3	27	23		19	3		1 horse	24
August	24	5		29	24		21	2		1 cow	17
September	21	1		22	21		19	1	1		11
October	39	4		43	38	1	36	1		1 cow, 1 horse	18
November	21	4		25	20	1	19		1	1 horse	8
December	44	7		51	44		44				24
1914											
January	48	12		60	44	4	46	1		1 cow	37
February	36	11	3	50	34	2	30	1		4 cows, 1 horse	18
March	31	5	3	39	31		29	1	1		24
April	14	20	1	35	14		14				6
May	7	17	2	26	7		7				7
June	12	16	2	30	12		10	1		1 cow	13
Totals	606	139	25	770	580	26	543	21	9	33	384

TABLE IV.
Positive Cases of Rabies by Counties.

Alameda	104
Amador	4
Butte	6
Calaveras	4
Colusa	1
Contra Costa	18
El Dorado	1
Fresno	45
Imperial	5
Kern	5
Kings	18
Los Angeles	8
Madera	2
Marin	21
Merced	8
Napa	14
Nevada	11
Placer	36
Riverside	1
Sacramento	33
San Benito	3
San Bernardino	13
San Diego	8
San Francisco	6
San Joaquin	39
San Luis Obispo	3
San Mateo	47
Santa Barbara	1
Santa Clara	66
Santa Cruz	2
Siskiyou	3
Solano	4
Sonoma	14
Stanislaus	19
Tehama	2
Tulare	18
Tuolumne	3
Ventura	1
Yolo	6
Oregon	3
Total	606

The nine human cases of rabies (shown in Table III) which were confirmed by laboratory examination of the brain tissue at the State Hygienic Laboratory, together with five other cases of human rabies which came to the attention of the laboratory staff during the biennial period, are briefly described below:

Case 1.—A girl, A. B., 6 years old, died of rabies in Los Angeles on July 15, 1912. She had been severely bitten on the right cheek by a strange dog on May 27th. No tissue was obtained for laboratory examination.

Case 2.—A man, J. J. R., about 60 years of age, died in San Francisco from rabies on July 20, 1912. He had been bitten in the left thumb by his own dog on June 18, 1912. On July 15th, this man began to show symptoms of rabies. Some of his brain tissue was inoculated into a rabbit at the State Hygienic Laboratory. The rabbit came down in 17 days and Negri bodies were found in its brain tissue.

A boy, F. O., 16 years old, died of rabies on July 22, 1912. He had been bitten in the left hand by a strange before the boy showed the first symptoms of rabies on

July 19, 1912. At the State Hygienic Laboratory, rabbits were inoculated with some of the brain tissue. They developed rabies, and Negri bodies were found in their brain tissue.

Case 4.—A woman, M. J. S., 37 years old, died of rabies on November 23, 1912, in San Francisco. She had been bitten in the left hand by a stray dog two months before. At the laboratory of the San Francisco Health Department, Negri bodies were found in her brain tissue and rabbits which were inoculated with brain tissue developed rabies.

Case 5.—A boy, S. N., age 10, died of rabies in Sacramento December 9, 1912. There was no history of a bite. The symptoms began on December 6th. Portions of brain tissue were examined at the State Hygienic Laboratory. Negri bodies were found in the tissue, and rabies was transmitted to animals by inoculation with the brain tissue.

Case 6.—A girl, N. C. O., age 6, died of rabies on February 1, 1913, in San Francisco. She had been bitten by her own dog three weeks before she showed the first symptoms on January 29th. A portion of her brain tissue was examined at the State Hygienic Laboratory and Negri bodies were found. The diagnosis was also confirmed by animal inoculation.

Case 7.—A man, A. C., age 23, died of rabies on May 22, 1913, in San Francisco. He had been bitten by a dog two months before. A portion of the man's brain was examined at the State Hygienic Laboratory. Many large Negri bodies were found.

Case 8.—A girl, J. B., age 4 years, died of rabies in San Francisco May 26, 1913. She had been severely bitten under the right eye on April 25th. Within 24 hours, the Pasteur treatment was begun at the San Francisco Health Department with fresh virus from the State Hygienic Laboratory. The intensive course of treatment was given, ending May 16th. On May 20th, too soon for the establishment of a strong immunity by the treatment, the symptoms of rabies began. A portion of the brain tissue was examined at the State Hygienic Laboratory. Negri bodies were found, and rabies was produced in rabbits by inoculation with the brain tissue.

Case 9.—A man, C. R. L., about 30 years old, residing near Sebastopol in Sonoma County, died of rabies at Santa Rosa on September 17, 1913. He had been bitten in the right wrist by his own dog while hunting near Bodega Bay on August 12th. The first symptoms of rabies appeared on September 13th. Examination of his brain at the State Hygienic Laboratory revealed Negri bodies. Rabies was produced in rabbits by inoculation with the brain tissue.

Case 10.—A girl, F. I. W., aged 5½ years, died of rabies at Newcastle, Placer County, on July 25, 1913. She had been bitten in the arm by a strange dog on July 2d. The symptoms of rabies began on July 22d. There was no autopsy.

Case 11.—A Japanese man, G. K., 32 years old, died of rabies in Los Angeles on August 6, 1913. He had been bitten on the arms by a rabid dog at San Bernardino on June 30th. On August 4th he had distinct symptoms of rabies. This man had been instructed to take immediately the free Pasteur treatment furnished by the State Board of Health at Los Angeles, but he had not followed the advice. There was no autopsy.

Case 12.—A man, P. G., aged 57, died of rabies on November 15, 1913, in Placer County Hospital in Auburn, where he had been taken from his home in Lincoln, Placer County. He had been inoculated while opening the mouth of his sick dog about October 27, 1913. Symptoms began about November 11th. A portion of the brain was examined at the State Hygienic Laboratory. Numerous Negri bodies were found in the tissue. This confirmed the diagnosis of rabies.

Case 13.—A colored boy, C. B., aged 5 years, died of rabies at Oxnard, Ventura County, on November 19, 1913. He had been severely bitten through the left ear by a rabid dog on September 30, 1913. Rabies in the dog was proved by examination at the State Hygienic Laboratory. The boy was sent to the southern branch of the State Hygienic Laboratory at Los Angeles for treatment, which was begun on October 5th and was completed on October 25th. It was stated that the symptoms began with "nervousness" on November 9th. There was no autopsy.

Case 14.—A boy, W. E., aged 5 years, died of rabies in Oakland on March 25, 1914. He had been severely bitten over the right eye, on the right eyelid and on the right cheek on February 11th. On the following day, intensive antirabic treatment was begun at the State Hygienic Laboratory. The treatment was finished on March 4th. On March 22d, the symptoms of rabies began with nervousness and refusal to eat. Some of the brain tissue was examined at the State Hygienic Laboratory. Negri bodies were found and rabies was transmitted by inoculation to a rabbit.

Syphilis.

In April, 1914, the State Hygienic Laboratory began making free Wassermann tests for physicians of California. The work increased during the last three months of the biennial period, reaching a total of 142 examinations. This work is very important as it recognizes the responsibility of the state for the prevalence of this preventable disease. The laboratory is permitted to make the tests only when the physician states that his patient is unable to pay the cost of a reliable test. This last regulation, while instituted chiefly to prevent an overwhelming number of specimens at the beginning, has been proved to be unnecessary. No such restriction on the basis of financial status exists in connection with any of the other laboratory examinations, and this limitation is against the general policy and spirit of the laboratory. Examinations should be made only on the basis of danger to the public health. Now that the restriction has been found to be unnecessary, I respectfully recommend to the State Board of Health that they remove it. After such action, the people will be able to see that syphilis has been recognized by the board as a disease of great public health importance. The reporting of this disease, already required by law, will become more efficient if the state takes an active part in ascertaining its extent through free laboratory examinations.

Tuberculosis.

During the biennial period, 908 examinations of sputum for tubercle bacilli were made. An outfit is furnished for sending the specimens through the mails.

Typhoid Fever.

The laboratory makes Widal tests for typhoid fever when specimens of blood are sent in the regular mailing outfits, which are furnished free to physicians. In connection with special investigations of the State Board of Health and on the written request of health officials, when the protection of the public health demands such tests, specimens of feces and urine will be examined with a view of detecting the typhoid carrier state. Blood cultures will be examined, especially when typhoid vaccination has made the Widal test inapplicable.

Water Pollution.

Samples of public water supplies are examined bacteriologically for the presence of pollution on the request of the health officials. Examinations are made only when the samples have been submitted in the sterile containers and ice box sent out by the laboratory.

The number of water examinations has increased greatly owing to the increased interest in the prevention of typhoid fever and on account of the requirements of the United States Public Health Service regarding water used for drinking purposes on interstate carriers. The work is unsatisfactory because too much emphasis is placed on a single laboratory test. It is very important that the laboratory work should supplement the field investigation of a sanitary engineer in the employ of the State Board of Health. Then the board could collect really valuable information regarding the public water supplies of the state, and could take efficient steps for the enforcement of the laws against stream pollution.

Examinations for Towns and Cities.

The 7,512 examinations performed during the biennial period were made for 394 towns and cities and their surrounding country. Cities having a population greater than 20,000 are not served, as they are expected to furnish their own free laboratory service. The work of the laboratory is more evenly distributed geographically than ever before.

In Table V will be shown the number of specimens sent from each town or city. When specimens are credited to the larger cities, which have their own laboratories, it means that physicians living in those cities submitted samples from out-of-town patients, or else that the work was done for state institutions situated within the cities.

TABLE V.
Examinations by Towns and Cities.

	July to December, 1912	January to June, 1913	July to December, 1913	January to June, 1914	Total
Acampo	1	2			3
Agnew	1	3	1	2	7
Alameda	63	33	81	47	264
Albany		15	3	10	28
Alberta				1	1
Alhambra	16	11	11	14	52
Alpaugh	1	1		2	4
Alturas	4	1	1	3	9
Alviso			1		1
Anderson		6		18	24
Angels Camp		2	1	1	4
Angiola		1			1
Antioch	4	22		9	35
Aptos			1		1
Arbuckle	4	35	6	11	56
Arcata			1		1
Aromas	1				1
Arroyo Grande				1	1
Artesia	2			17	19
Auburn	2	1	4	1	8
Azusa	1			2	3
Baird		1			1
Bairdstown				1	1
Bakersfield	13	10	12	13	48
Bangor			1		1
Banning			1		1
Bartlett Springs			3		3
Bay Point		6		2	8
Bell				2	2
Belvedere	4		1		5
Benicia	21	13	20	8	62
Berkeley	754	114	193	184	1,245
Blythe		1		6	7
Brawley			1	3	4
Brentwood				2	2
Broderick	2	1		1	4
Burbank		3	7	2	12
Burlingame	1	2	2		5
Buttonwillow	1				1
Byron				1	1
Calistoga		1		6	7
Cambria	1				1
Campbell	2		2	3	7
Campo Seco	1				1
Cedarville				1	1
Centerville	1	4	6		11
Ceres	1	2			3
Chadwick			1		1
Chico	22	23	7	43	95
Claremont	2	2	7	3	14
Clarksburg				1	1
Clippergap		1			1
Cloverdale				2	2
Clovis	9	4	1	5	19
Coalinga	6	3	3		12
Colfax	7	4	6	1	18
College City				1	1
Colma	1	1		1	3
Colton	5	15	12	9	41
Colusa	33	57	37	46	173
Compton	2	2	1	1	6
Concord	12	23	15	5	55
Copperopolis	5				5
Corcoran	22	13	7	12	54
C	7	1	12	8	28
	6	1	3	3	13
		1			1
		1			1

TABLE V—Continued.
Examinations by Towns and Cities.

	July to December, 1912	January to June, 1913	July to December, 1913	January to June, 1914	Total
Covelo		1			1
Covina	8	11	4	11	34
Cowell				8	8
Coyote				1	1
Cragmont				1	1
Crockett	2		1	1	4
Crows Landing			1	1	2
Cucamonga		4	3		7
Cupertino			1		1
Cutler		1			1
Davis		1	3	5	9
Delano		1		1	2
Del Paso				3	3
Del Rey		1	2	4	7
Del Rosa				1	1
Denver				1	1
Dinuba	2		2		4
Dixon				1	1
Dos Palos	5	2	2	10	19
Downey	1				1
Drytown				1	1
Dunsmuir		1		1	2
Dutch Flat	3		2		5
Eagle Rock				1	1
East Auburn	2	2		1	5
Edenvale			1	2	3
El Bonte			1		1
El Centro	3		2	1	6
Eldridge	2				2
Elk Grove	18	28	16	28	90
El Monte	4	1			5
El Pismo			1		1
El Portal				2	2
El Segundo			2		2
Elsinore		5		79	84
Emeryville	19	13	12	8	52
Empire		1			1
Escalon	1				1
Escondido				1	1
Esparto		1	1		2
Etna Mills	2		5	2	9
Eureka			2	5	7
Exeter		3	2	1	6
Fairfax		2	1		3
Fairfield		1			1
Fair Oaks		2			2
Fallbrook				1	1
Farmington	1				1
Farralone			1		1
Felix				1	1
Ferndale			1	1	2
Fillmore	1			1	2
Florin		1		1	2
Floriston			1		1
Folsom			1	1	2
Forestville			2		2
Fort Bragg			26	39	65
Fortuna				2	2
Fowler	4	1	4	1	10
French Camp		2			2
Fresno	23	19	32	23	97
Fruitvale	1		2		3
Fullerton	1	1		1	3
Galt		2	1		3
Gardena	1		7		8
Garden Valley			1		1
Gazelle			1		1
Georgetown				1	1

TABLE V—Continued.
Examinations by Towns and Cities.

	July to December, 1912	January to June, 1913	July to December, 1913	January to June, 1914	Total
Gilroy				1	1
Glen Alpine	1				1
Glendale	5	11	7	8	31
Glendora				3	3
Gold Run			1		1
Gonzales	1			3	4
Grand Island			1		1
Grass Valley	1	7	52	86	146
Greenview		1	1		2
Greenville			2		2
Gridley	8	20	15	22	65
Gustine			1	3	4
Halcyon			1		1
Half Moon Bay	3	2	1		6
Hanford	4	10	4	181	199
Hayward	82	281	52	50	445
Healdsburg	1	3	4	3	11
Hemet	2	1			3
Hermosa Beach				1	1
Hickman		1			1
Highgrove				1	1
Highland			2	3	5
Hilt	2	3		2	7
Hollister		1	7	13	21
Hollywood				2	2
Holtville		2			2
Hoopa	8	6		2	16
Hornbrook		1			1
Huntington			1		1
Hyde Park			10	3	13
Inglewood		26	17	21	64
Ingomar	2				2
Inverness	1				1
Ione	6	4	14	7	31
Irvington	9	9	21	43	82
Irwin		3			3
Isleton	2	1			3
Jackson	25	4	4	5	38
Jamestown				4	4
Kelseyville	3		2	1	6
Kennett			2	5	7
Kerman	1	2	1	1	5
Kerto	1				1
Kingsburg		2		1	3
Knights Ferry		1			1
Lakeport		7			7
Lankershim		1		3	4
Larkspur	1			5	6
Laton	1	1			2
Lemon Cove	1				1
Lemoore				1	1
Lincoln		3	1	3	7
Linden				2	2
Lindsay	2	1	1	2	6
Live Oak	5		3	2	10
Livermore	11	5	9	6	31
Livingston			1	1	2
Lockeford		3	2		5
Lodi	1	1	4	14	20
Lompoc	3	2			5
Long Beach	1				1
Loomis		2	5	3	10
Los Altos		1			1
Los Angeles	9	1	27	69	106
Los Banos	1	4	2	6	13
Los Gatos	6	11	10	15	42
Los Osos	1	3		3	7
Los Osos				5	5

TABLE V—Continued.
Examinations by Towns and Cities.

	July to December, 1912	January to June, 1913	July to December, 1913	January to June, 1914	Total
Los Olivas	2				2
Lower Lake				1	1
Loyalton				1	1
Madera	2	6	4	7	19
Malaga	1				1
Manhattan Beach				7	7
Manteca	4	3	10	5	22
Maricopa	4	5	4	9	22
Mariposa		1		1	2
Martinez			1		1
Marysville	7	5	3	20	35
Maxwell	13	7	16	9	45
Mayfield		1		1	2
McCloud				1	1
McFarland			4	2	6
McKittrick			1	6	7
Merced	8	5	10	12	35
Merced Falls				1	1
Meridian	1				1
Mill Valley	11	4	2	1	18
Milpitas	1			4	5
Milton	1				1
Mission San Jose			3	1	4
Modesto	5	4		6	15
Moneta			1	4	5
Monrovia		4	1		5
Monterey				1	1
Mountain View			2		2
Napa	29	17	11	30	87
National City				1	1
Needles		1			1
Nevada City	3	8	4		23
Newcastle	3	7			10
Newman	3		5	14	22
Niles	3	5		8	16
Niles Canyon			2		2
Nordhoff				1	1
Norwalk	5	1		1	7
Novato			1		1
Oakdale	7	18	12	10	47
Oak Grove				1	1
Oakland	22	4	1	6	33
Oakley			1		1
Oakville			1		1
Oceano			20	22	42
Ocean Park			2	5	7
Oceanside	2	2		2	6
Ontario	4	5		2	11
Oregon		3			3
Orland	1				1
Orosl		2	2		4
Oroville	7	30	4	21	62
Oxnard			1		1
Palo Alto		14	7	2	23
Pasadena	3	1	1		5
Paskenta	1				1
Paso Robles	6	1	3		10
Patterson				1	1
Penngrove			1	1	2
Penryn			2		2
Perkins			2		2
Perris			1	1	2
Pescadero				1	1
Petaluma	2		1	4	7
Piedmont	1	1	2	2	6
Pinole					1
Pittsburg		1		1	2
Placerville		2	1		3

TABLE V—Continued.
Examinations by Towns and Cities.

	July to December, 1912	January to June, 1913	July to December, 1913	January to June, 1914	Total
Pleasanton	2	-----	4	4	10
Plymouth	1	-----	3	1	5
Pope Valley	-----	1	-----	-----	1
Porterville	4	6	12	9	31
Princeton	1	-----	-----	-----	1
Quincy	8	-----	1	7	16
Raymond	-----	1	-----	4	5
Red Bluff	6	4	-----	1	11
Redding	-----	2	13	8	23
Redlands	-----	2	-----	8	10
Redwood City	1	4	1	1	7
Reedley	-----	1	-----	1	2
Represa	-----	-----	1	65	66
Reward	-----	1	-----	-----	1
Rialto	2	1	-----	-----	3
Richmond	10	6	8	89	113
Rio Vista	1	1	1	-----	3
Riverbank	-----	-----	1	1	2
Riverdale	-----	-----	-----	1	1
Riverside	6	2	26	3	37
Rocklin	2	3	3	2	10
Rodeo	-----	-----	-----	2	2
Roseville	5	12	5	1	23
Ross	2	1	3	-----	6
Rust	-----	8	24	16	48
Ryan	-----	-----	-----	1	1
Sacramento	17	11	13	6	47
Salida	-----	-----	1	-----	1
Salinas	4	1	6	3	14
San Andreas	-----	5	-----	-----	5
San Anselmo	1	-----	-----	2	3
San Bernardino	-----	1	14	13	28
San Diego	-----	-----	5	5	10
San Dimas	1	-----	-----	1	2
San Fernando	5	-----	-----	-----	5
San Francisco	51	5	4	6	66
San Gabriel	-----	-----	2	2	4
Sanger	24	13	10	3	50
San Jacinto	4	1	-----	-----	5
San Jose	7	7	35	52	101
San Juan Bautista	6	1	1	2	10
San Leandro	-----	-----	-----	4	4
San Luis Obispo	10	16	5	-----	31
San Martin	-----	-----	-----	1	1
San Mateo	16	9	3	5	33
San Pablo	2	-----	-----	1	3
San Quentin	-----	-----	-----	58	58
San Rafael	6	-----	3	2	11
Santa Ana	4	-----	-----	1	5
Santa Barbara	-----	5	-----	1	6
Santa Clara	2	-----	3	1	6
Santa Cruz	6	12	2	4	24
Santa Margarita	1	-----	1	1	3
Santa Maria	-----	-----	1	-----	1
Santa Monica	-----	-----	-----	1	1
Santa Paula	1	-----	1	-----	2
Santa Rosa	-----	-----	8	-----	8
Saratoga	-----	-----	3	7	10
Sausalito	7	4	3	10	24
Sawtelle	-----	2	-----	1	3
Sebastopol	-----	-----	3	-----	3
Selma	-----	1	-----	1	2
Sierra Madre	1	5	-----	3	9
Sonora	12	1	2	3	18
South Pasadena	5	1	9	-----	15
South San Francisco	37	-----	2	-----	39
Spreckels	-----	1	2	-----	3
Stego	-----	-----	-----	2	2

TABLE V—Continued.
Examinations by Towns and Cities.

	July to December, 1912	January to June, 1913	July to December, 1913	January to June, 1914	Total
St. Helena		1		5	6
Stockton	25	30	53	38	146
Strathmore				1	1
Suisun	2	4	9	5	20
Sultana	3				3
Summit			1		1
Sunnyvale	1	1	1	4	7
Sutter Creek	26	23	9	12	70
Taft	11	5	10	8	34
Tahoe		1	9		10
Tehama		2		2	4
Templeton	1	5		3	9
Terra Bella		2			2
Thermal			2		2
Thornton		1			1
Tiburon	4				4
Topanga				3	3
Tracy	9		1	4	14
Tranquility	1			1	2
Tropico	10			1	11
Truckee		1	2		3
Tulare	1	1	1		3
Tuolumne				1	1
Turlock	3	2	32	7	44
Ukiah	1	7	4	4	16
Upland	2	1		4	7
Vacaville	6	1	1	5	13
Vallejo	20	11	19	7	57
Van Nuys	4	16	9	7	36
Venando	1				1
Venice			2	2	4
Visalia	3	4	4	7	18
Vorden		1			1
Walnut Creek	1			7	8
Wasco		2	4	1	7
Waterford			1		1
Waterman			1		1
Watsonville			1	3	4
Watts				2	2
Weaverville			2	3	5
Weed	1	5	6	1	13
Wheatland		1	4	8	13
Whittier	2	81	115	27	225
Williams	20	8	14	5	47
Willows	2	4	3	1	10
Windsor				1	1
Winters	4	4	6	9	23
Woodbridge	1				1
Woodland	12	8	9	31	60
Yolo				5	5
Yosemite				1	1
Yountville		1			1
Yreka	1	1		6	8
Yuba City	2	1	6	5	14
Totals	1,979	1,601	1,647	2,285	7,512

Owing to the large size of the state, it has been found necessary to maintain three branch laboratories. At these branches part-time bacteriologists examine cultures for diphtheria, sputum for tuberculosis, blood for typhoid fever, and blood smears for malaria. The branches also administer free antirabic treatment for the Division of Preventive Therapeutics. They cut down the time necessary to obtain laboratory results in these examinations whose value depends largely on prompt reports.

The Southern California Branch.

The Southern California Branch is located in Los Angeles. It serves the following counties: Imperial, Inyo, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Santa Barbara. The branch was in the charge of Dr. Stanley P. Black at 423 Auditorium Building up to the resignation of Dr. Black on January 26, 1914. On that date the work was taken over by Dr. Walter V. Brem and the branch was moved to 1209 Brockman Building.

During the biennial period 726 diagnostic examinations were made as follows: diphtheria 538, of which 200 gave positive results; gonococcus infections 2, positive 1; hookworm 2, positive 0; rabies 2, positive 2; tuberculosis 35, positive 13; typhoid 147, positive 15.

The San Joaquin Valley Branch.

The San Joaquin Valley Branch is in charge of Dr. W. W. Cross and is situated in Fresno. On June 1, 1914, the laboratory was moved from 32 Patterson Block to 710 Griffith-McKenzie Building.

The total number of tests for the biennial period was 379, divided between examinations for the different diseases as follows: anthrax 2, positive 0; diphtheria 216, positive 32; gonococcus infections 2, positive 0; hookworm 3, positive 0; malaria 3, positive 1; tuberculosis 58, positive 17; typhoid 93, positive 12; miscellaneous 2, positive 0.

The San Joaquin Valley Branch serves the following counties: Fresno, Kern, Kings, Madera, Mariposa, Merced, Stanislaus, Tulare, and Tuolumne.

The Northern California Branch.

Dr. F. F. Gundrum has charge of the Northern California Branch of the State Hygienic Laboratory at 406 Inverness Building, Sacramento. This branch does work for the following counties: Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Glenn, Lassen, Modoc, Mono, Nevada, Placer, Sacramento, San Joaquin, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo, and Yuba.

During the biennial period the following 1,163 examinations were made: diphtheria 615, of which 193 gave positive results; gonococcus infections 7, positive 5; hookworm 1, positive 0; malaria 59, positive 16; tuberculosis 217, positive 39; typhoid 262, positive 89; miscellaneous 2, positive 0.

The State Hygienic Laboratory in Berkeley.

In addition to doing certain kinds of examinations for the remainder of the state, the main laboratory on the campus of the University of California in Berkeley does all the kinds of examinations for the following counties: Alameda, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, and Solano.

All the water examinations, special laboratory investigations, and examinations for rabies are done in Berkeley. The greater part of the work shown in Table II was done there.

Depositories for Mailing Outfits.

The establishment of branch laboratories decidedly shortened the time between the sending of a sample to the laboratory and the receipt of the report. Few health officials or physicians, however, kept on hand a stock of fresh diphtheria culture outfits or of the various other mailing outfits sufficient for an emergency. As a result, it was frequently necessary to delay until a letter could be written and a supply could be received from the State Hygienic Laboratory in Berkeley. The absence of a proper mailing outfit has tempted many a physician to send cultures for diphtheria on old dried culture media which had long been useless, or to send infectious material through the mails in insufficient and illegal containers.

To correct these conditions the laboratory has established a system of depositories for mailing outfits in drug stores in our principal towns and smaller cities. By applying at a depository as the need arises a health official or physician may receive, without charge, mailing outfits for sending various specimens for examination. This system should save expense for the laboratory by diminishing the large number of mailing outfits sent out to individual physicians to be kept for emergency, and should greatly diminish unnecessary and dangerous delay.

The following table shows the depositories which have been established. With very few exceptions, the recommendations of the local health officers were followed, and, if the table seems to show the neglect of any particular county, it is because the proper recommendations for depositories were not sent in response to request. At the end of the biennial period 169 depositories had been established and stocked. Each had received all the kinds of mailing outfits which are furnished, and also a small window sign announcing the depository:

TABLE VI.
Depositories for the Mailing Outfits of the State Hygienic Laboratory.

County	Town	Drug store
Alameda	Alameda	Flatow's Drug Store
	Hayward	Roger's Pharmacy
	Livermore	McKown & Mess
	Niles	Snedden's Pharmacy
	Oakland	Phillip & Phillip
	Pleasanton	Peter Rock
	San Leandro	O. J. Lynch's Pharmacy
	Ione	Model Drug Store
Amador	Sutter Creek	Morris & Siebe
Butte	Chico	Ben Hastings Pharmacy
	Gridley	The Gridley Pharmacy
Colusa	Arbuckle	Chas. G. Stinson
	Colusa	Oscar Robinson
	Maxwell	Fouch's Drug Store
	Williams	J. F. Fouch
Contra Costa	Antioch	Palace Drug Company
	Concord	C. W. Klein
	Crockett	Crockett Drug Company
	Pinole	Pinole Drug Company
	Richmond	Ferguson's Drug Store

TABLE VI—Continued.

Depositories for the Mailing Outfits of the State Hygienic Laboratory.

County	Town	Drug store
Del Norte	Crescent City	Bowman's Drug Store
Fresno	Clovis	Clovis Drug Store
	Fresno	San Joaquin Drug Company
	Kingsburg	Reliable Pharmacy
	Reedley	Reedley Drug Company
	Sanger	O. A. Brehler
	Selma	Dusey & Sawrie
Glenn	Orland	Birch & Company
Humboldt	Arcata	Skinner Duprey Drug Company
	Eureka	Keller-Bohmansson Drug Co.
	Fortuna	Bowman's Drug Store
Imperial	Brawley	Fulton's Pharmacy
	Calexico	Aitken's Pharmacy
	Holtville	Holtville Pharmacy
	Imperial	Imperial Pharmacy
Kern	Delano	Ramsay's Pharmacy
	East Bakersfield	Kern Drug Company
	McKittrick	McKittrick Pharmacy
	Taft	Taft Pharmacy
	Tehachapi	Yerian Brothers
Kings	Corcoran	Corcoran Drug Store
Lake	Kelseyville	Pond Drug Store
	Lakeport	Meddaugh's Drug Store
	Lower Lake	Dr. H. P. Weiper
	Middletown	Middletown Drug Store
Lassen	Susanville	J. B. Spaulding
Los Angeles	Alhambra	F. B. Elwood
	Artesia	Artesia Pharmacy
	Azusa	Dolley Drug Company
	Belvedere	The Logan Drug Company
	Burbank	Burbank Pharmacy
	Claremont	College Drug Store
	Compton	Delmar Pharmacy
	Covina	W. W. Nash
	Downey	The Haygood Pharmacy
	Eagle Rock	Eagle Rock Drug Company
	El Monte	El Monte Drug Store
	Florence	Florence Pharmacy
	Glendale	Glendale Pharmacy
	Glendora	Anderson Pharmacy
	Huntington Park	Batcheller's Pharmacy
	Inglewood	Sollenberger's Drug Store
	Lordsburg	Kenyon's Pharmacy
	Los Angeles	M. S. Tague
	Monrovia	Thos. Neville
	Norwalk	Norwalk Pharmacy
	Ocean Park	Moody's Drug Store
	Tropic	Chas. F. Story's Pharmacy
	Venice	Peoples Drug Company
	Whittier	Whittier Pharmacy
Marin	Belvedere	Belvedere Pharmacy
	Mill Valley	Lockwood Pharmacy
	San Anselmo	Poppy Pharmacy
	San Rafael	Day's Pharmacy
	Sausalito	Sausalito Drug Company
Mendocino	Fort Bragg	Pacific Drug Store
	Mendocino	C. O. Packard Drug Store
	Ukiah	Gibson's Pharmacy
	Willits	Rex Drug Company
Merced	Dos Palos	Dos Palos Drug Store
	Los Banos	Bertholf Drug Store
	Merced	Merced Drug Company
Modoc	Alturas	Gibson Drug Company
Monterey	Monterey	Palace Drug Company
	Salinas	Krough's Drug Store
Napa	Napa	Brownlee's Drug Store
Nevada	Nevada City	Dickerman Pharmacy

TABLE VI—Continued.

Depositories for the Mailing Outfits of the State Hygienic Laboratory.

County	Town	Drug store
Orange	Anaheim	Mullnix Drug Store
	Fullerton	Finch's Drug Store
	Orange	K. E. Watson Company
Placer	Santa Ana	Rowley Drug Company
	Auburn	J. G. McLaughlin
	Colfax	J. L. Butler & Son
	Dutch Flat	Dr. J. H. Johnston
	Lincoln	Ingram's Drug Store
Plumas	Loomis	Loomis Pharmacy
	Quincy	Quincy Drug Store
Riverside	Banning	Banning Drug Store
	Beaumont	Robert Fulton
	Corona	R. F. Billings Estate
	Elsinore	Wright Drug Company
	Hemet	Wedemeyer's Pharmacy
	Riverside	F. A. Gardner & Company
	Elk Grove	"Ye Medicine Shop"
Sacramento	Folsom	S. H. & F. P. Burnham
	Chino	Reher's Pharmacy
San Bernardino	Colton	Colton Pharmacy
	Needles	Needles Drug and Jewelry Co.
	Redlands	Mont P. Chubb Drug Company
San Diego	San Bernardino	Owl Drug Store
	Chula Vista	Wigginton's Pharmacy
	Coronado	Central Drug Store
	Escondido	Baldridge Drug Company
	La Mesa	La Mesa Drug Store
	Oceanside	Exton & Nichols
	Ramona	Thos. Jerman
San Joaquin	San Diego	Ferris & Ferris
	Stockton	Eagle Drug Store
San Luis Obispo	Arroyo Grande	W. A. Conrad, Jr.
	Cambria	Peoples Drug Store
	Paso Robles	W. C. Bennett
	San Luis Obispo	Peoples Pharmacy
	Campbell	Orchard City Drug Company
Santa Clara	Los Gatos	Geo. A. Green's Pharmacy
	Mountain View	E. T. Johnson
	Palo Alto	University Pharmacy
	Palo Alto	Health Department (Harold F. Gray, Health Officer.)
	San Jose	Curtis & Henkle Drug Company
Santa Cruz	Santa Clara	Madden's Pharmacy
	Santa Cruz	Palmer Drug Company
	Watsonville	Steinhauser & Eaton
Shasta	Redding	Powell Pharmacy Company
Sierra	Downsville	Downsville Drug Store
	Loyalton	Loyalton Drug Company
Siskiyou	Dunsmuir	Red Cross Drug Store
	Etna Mills	W. J. Balfrey
	Sisson	Mt. Shasta Pharmacy
	Yreka	Avery Drug Company
Solano	Benicia	Benicia Pharmacy
	Dixon	California Drug Store
	Rio Vista	Rio Vista Pharmacy
	Suisun	Criterion Drug Store
	Vacaville	Reid Drug Company
	Vallejo	Vallejo Drug Company
Sonoma	Healdsburg	Rathke's Pharmacy
	Petaluma	Young-Herold Drug Company
Stanislaus	Santa Rosa	Hahman Drug Company
	Ceres	Ceres Drug Company
	Modesto	Maze Drug Store
	Newman	Pioneer Drug Store
Tehama	Oakdale	Endicott's Drug Store
	Turlock	Turlock Drug Company
	Corning	Thompson's Drug Store
	Red Bluff	Elmore Pharmacy

County	Town	Drug store
Trinity -----	Weaverville -----	D. B. Fields, M.D.
Tulare -----	Dinuba -----	McCracken's Pharmacy
	Exeter -----	Mixter Pharmacy
	Lindsay -----	Lindsay Drug Company
	Tulare -----	E. Allen Test
	Visalia -----	J. M. Boynton
Tuolumne -----	Sonora -----	Union Drug Store
	Tuolumne -----	Bigelow's Drug Store
Ventura -----	Nordhoff -----	Ojai Drug Store
	Santa Paula -----	Cauch's Drug Store
	Ventura -----	Pioneer Drug Store
Yolo -----	Winters -----	Day's Drug Store
	Woodland -----	John V. Leithold
Yuba -----	Marysville -----	Horning Drug Company
	Wheatland -----	Wheatland Pharmacy

Division of Preventive Therapeutics.

The work of the Division of Preventive Therapeutics includes the manufacture and free administration of the Pasteur antirabic virus to persons who have been inoculated with the saliva of rabid animals and can not afford to purchase the preventive treatment, and also the manufacture and free distribution to physicians of antityphoid vaccine.

Pasteur Antirabic Treatment.

During the biennial period the Hygienic Laboratory has manufactured all the virus used by the State Board of Health. Two new stations for the administration of the virus were arranged for at San Diego and Mare Island, making ten laboratories at which the treatment can be obtained if needed. On March 17, 1914, Dr. H. A. Thompson, City Pathologist of San Diego, was appointed a deputy to administer the free treatment to people of San Diego. On the same day Dr. M. F. Gates, medical inspector in the United States Navy, was similarly deputized to give the treatment at the Naval Hospital on Mare Island. The laboratories and the treatments given at each are shown in Table VII. The counties from which the patients were sent are shown in Table VIII. As an emergency measure and a courtesy, treatment for two persons was sold at cost to the State Board of Health of Oregon.

TABLE VII.
Pasteur Treatments, July 1, 1912, to June 30, 1914.

Place of administration	Number of cases	Treatments completed	Deaths	Diagnosis in biting animal based on—		
				Negri bodies or inoculation	Observed symptoms	Suspicious history
Main laboratory at Berkeley.....	204	200	1	142	42	120
Northern branch at Sacramento.....	76	36	-----	31	2	3
San Joaquin Valley branch at Fresno.....	18	18	-----	15	-----	8
Southern branch at Los Angeles.....	22	21	1	17	1	4
Laboratory of the Sacramento Board of Health, by deputized bacteriologist.....	14	12	-----	9	3	2
Laboratory of the Los Angeles Board of Health, by deputized bacteriologist.....	18	16	-----	14	4	-----
Laboratory of the San Diego City Board of Health, by deputized bacteriologist.....	6	6	-----	4	2	-----
Laboratory of the San Francisco Board of Health, by deputized bacteriologist.....	123	122	1	85	17	81
Letterman General Hospital, Presidio, San Francisco, by deputized bacteriologist.....	13	13	-----	11	1	1
United States Naval Hospital, Mare Island, by deputized bacteriologist.....	-----	-----	-----	-----	-----	-----
Oregon State Board of Health.....	2	2	-----	2	-----	-----
Totals	466	456	3	330	72	64

¹Including 7 laboratory workers.

²Including 1 laboratory worker.

TABLE VIII.
Distribution of Cases by Counties.

San Francisco	147
Alameda	119
Los Angeles	25
Sacramento	23
Santa Clara	23
Placer	21
San Diego	13
Fresno	12
Contra Costa	12
San Mateo	11
San Joaquin	10
Stanislaus	9
Napa	6
Ventura	5
Marin	4
Butte	3
Merced	3
Sonoma	3
Yolo	3
San Bernardino	3
Amador	2
Oregon	2
Solano	2
Tuolumne	2
Mendocino	1
Shasta	1
Tehama	1
Total	466

The animals infecting the wounds that necessitated the Pasteur treatment were 416 dogs, 21 cats, 7 cows, and 5 horses. In 9 cases the infection came from cases of human rabies. Seven treatments were given to laboratory workers as precautionary measures, and one to a physician who inoculated himself accidentally while giving the Pasteur treatment.

Deaths from rabies occurred in three of the 466 patients. These fatal cases of rabies are described as cases Nos. 8, 13, and 14, in the section of this report on "Rabies" under the "Division of Biological Examinations." The intervals of time between the end of treatment and the onset of symptoms were 4, 15, and 18 days, respectively. These patients were children, aged 4, 5, and 5 years, respectively. They had been severely bitten about the head by rabid dogs, and the production of immunity by the intensive antirabic treatment was not established fast enough and in sufficient intensity to protect against these three unusually severe inoculations.

No serious complications during treatment occurred. In two cases local abscesses were reported and were probably due to faults in asepsis in preparing the virus for administration. When we consider that the 466 treatments which were completed include 11,400 hypodermic injections of a suspension of tissue which had been ground in an open mortar just prior to administration, it is not surprising that two doses produced local abscesses. In two cases there were malaise and nausea in the middle of the course of treatment. In one case there was transient urticaria. One patient complained of pain in the leg which had been bitten. One case developed an extensive inflammation of his joints, which was probably due to an infection contracted prior to his treatment. One patient, who had been taking the treatment as a precautionary measure owing to frequent exposure to rabid animals, shortly after the end of treatment developed transient hoarseness and weakness of the legs lasting about two weeks. It is not certain that these manifestations had a relation to the treatment, but the condition may have been a very mild manifestation of the process which in rare instances produces a transient paralysis after the Pasteur treatment. One patient complained of neuralgia of the left side of the face for a week shortly after the end of treatment, and another had a troublesome occasional spasmodic contraction of the muscles on the side of the neck, pulling down the jaw. This came on a month after the end of treatment.

It is apparent that some of these complications among 466 patients probably had no relation to treatment, and in some of the cases they may have been due to the original inoculation by a rabid animal. On the whole the record is satisfactory, as the majority of the patients had been bitten by animals proved rabid by the finding of Negri bodies or by animal inoculation (330 out of 466, or 71 per cent) and most of the others gave a history of being bitten by animals which were in all probability rabid, but which could not be investigated in the laboratory.

Typhoid Vaccine.

On March 1, 1914, the laboratory began the manufacture and free of antityphoid vaccine to the physicians of California. The prepared from a number of strains of the typhoid bacillus isolated in California. The improved method of Gay of the University of California was followed. In this

method the vaccine is killed with alcohol instead of heat, is ground to a fine powder, and is sensitized by treatment with a strong antityphoid immune serum. The number of treatments issued was not large during the spring and early summer, but the work was well under way before the end of the biennial period, and the laboratory was prepared for the heavy demand which occurred during the late summer and fall when typhoid fever was prevalent. Vaccine was distributed as follows on the request of physicians:

March, 1914	-----To	35	physicians for	347	patients
April, 1914	-----To	34	physicians for	650	patients
May, 1914	-----To	43	physicians for	383	patients
June, 1914	-----To	59	physicians for	442	patients
Total	-----To	171	physicians for	1,822	patients

Vaccine was furnished in large lots for the immunization of militia-men, of employees of lumber camps, and of state prisoners.

All physicians receiving the vaccine were asked to fill out and return data cards giving particulars regarding the treatment. They were especially urged to report at once the development of typhoid fever at any time subsequent to treatment. Only 748 of the data cards were filled out and returned. The severity of the reactions can be classified from the physicians' reports as follows: None, 485; slight, 189; moderate, 58; severe, 16; total, 748. In three cases abscesses occurred at the site of inoculation. These may have been due to failure to sterilize the syringes properly or to a local necrosis without infection.

Much of the vaccine is sent into communities where typhoid fever is prevalent, and frequently the vaccine is administered to persons already exposed to typhoid cases. In spite of this fact only four cases of typhoid fever were reported in persons receiving vaccine from the laboratory. One of these cases developed typhoid fever before he had received his third dose of the vaccine. He had been exposed two weeks before he was vaccinated. The other three cases had been exposed to typhoid fever in their own families and came down 7 days, 11 days, and 25 days, respectively, after the last dose of vaccine. As it takes approximately a month for typhoid vaccination to produce a high degree of immunity, at least two of these three cases can not be regarded as true failures.

Division of Epidemiological Investigations.

The Division of Epidemiological Investigations deals with the study and control of outbreaks of communicable disease. These investigations are carried on in the field as well as in the laboratory. They are very important as they deal chiefly with health emergencies. Local health officials, outside of our largest cities, are seldom in a position to carry on an intensive investigation of the causes of an outbreak of disease. When the causes are known, rational measures for control can be instituted, and the public is better protected and less annoyed than when the measures are not based on actual conditions discovered by trained epidemiologists.

Although some of the special investigations listed in the following report are not strictly limited to the field of epidemiology, they will be reported here for convenience.

1. An investigation of the conditions in the steerage of the steamship Newport. Begun on June 27, 1912.

2. A determination of the Hygienic Laboratory phenol coefficient of five disinfectants submitted by the Mendocino State Hospital, for the State Board of Control. The samples were received on July 1, 1912.

3. A bacteriological examination of clams from the shore between Sausalito and Mill Valley. Begun on July 9, 1912.

4. An investigation of a fourth case of human rabies in San Francisco. The patient was visited on July 19, 1912.

5. An investigation of a fifth case of human rabies in San Francisco. Begun on July 22, 1912.

6. An investigation of typhoid cases from the steamship "President." Begun on August 2, 1912.

7. An investigation of specimens of feces from a typhoid carrier. Begun on August 9, 1912.

8. An investigation of the bactericidal power of "Chloro-Naphtholeum." Begun on September 18, 1912.

9. An investigation of the bactericidal power of two samples of "Sanitation Drip." Begun on September 18, 1912.

10. An investigation of a death in San Anselmo reported as typhus fever, and found to be typhoid fever. Begun on September 26, 1912.

11. A bacteriological examination of six samples of ice, for colon bacilli. The examination was part of a larger investigation by the State Food and Drug Laboratory. Begun on September 27, 1912.

12. An investigation of the transmission of poliomyelitis by means of the stable fly (*Stomoxys Calcitrans*). Begun on October 18, 1912.

13. An investigation of diphtheria cases in Sutter Creek. Sutter Creek was visited on November 27, 1912.

14. An investigation of two cases of suspected poliomyelitis in Sacramento. Sacramento was visited on December 9, 1912.

15. An investigation of an epidemic of dysentery at Madison. Begun in Madison and Woodland on December 10, 1912.

16. An investigation of a case of human rabies in Sacramento. Begun on December 11, 1912.

17. An investigation of five cases of smallpox in Berkeley. Begun on January 8, 1913.

18. A bacteriological examination of samples from the water supply of Sacramento. Sacramento was visited on January 12, 1913.

19. An investigation of the typhoid fever situation at Antioch. Antioch was visited on January 15, 1913.

20. An investigation of a case of chronic glanders in man, at Hayward. Begun on January 24, 1913.

21. An investigation of an outbreak of diphtheria at Hayward. Hayward was visited on January 27, 1913.

22. An investigation of a case of infantile paralysis near San Leandro. The patient was visited on January 28, 1913.

23. An investigation of smallpox of several grades of severity in one family in Oakland. The patients were visited on January 29, 1913.

24. An investigation of a seventh case of human rabies in San Francisco. Begun on February 3, 1913.

25. An investigation of a case of pneumococcic meningitis, and a case of suspected meningitis of unknown etiology at Richmond. Begun at Richmond on February 7, 1913.

26. An investigation of the typhoid situation at Colusa. Colusa was visited on February 12, 1913.

27. An investigation of a sixth case of human rabies in San Francisco. Begun on February 24, 1913.

28. A bacteriological examination of cement and coal dusts. Begun on March 7, 1913.

29. An investigation of the slaughterhouse and fertilizer plant at Elmhurst. Begun on March 7, 1913.

30. An investigation of the conditions of the quarantine of a mild case of scarlet fever in Berkeley. Begun on March 8, 1913.

31. An investigation of scarlet fever in the State Deaf, Dumb and Blind Institute, at Berkeley. Begun on March 8, 1913.

32. An investigation of the methods of sterilization in common use in barber shops. Begun on March 17, 1913.

33. An investigation of an outbreak of smallpox in the State Hospital at Stockton. Stockton was visited on March 21, 1913.

34. An investigation of a case of suspected poliomyelitis at Alameda. The patient was visited on March 31, 1913.

35. An investigation of methods of disinfecting books. Begun on April 17, 1913.

36. An investigation of scarlet fever and diphtheria at Lakeport. Lakeport was visited on May 8, 1913.

37. An investigation of the virulence of diphtheria bacilli in the throats of carriers. Reported May 13, 1913.

38. An investigation of an eighth case of human rabies in San Francisco. Begun on May 23, 1913.

39. An investigation of a ninth case of human rabies in San Francisco. Begun on May 27, 1913.

40. An investigation of smallpox at Walnut Creek. Walnut Creek was visited on May 31, 1913.

41. An investigation of an outbreak of severe diarrhoea at Bay Point. Begun on June 10, 1913.

42. An investigation of a case of human plague near San Juan, San Benito County. Begun on June 13, 1913.

43. An investigation into the possibility of the transmission of diseases by the mouthpiece of the public telephone. Begun on June 18, 1913.

44. An investigation of a typhoid outbreak at Irvington. Irvington was visited on July 12, 1913.

45. An investigation of the alleged purification of air by the ozone machine. Reported on July 22, 1913.

46. An investigation of poliomyelitis in Siskiyou County. The region was visited on August 24, 1913.

47. An investigation of a case of human plague at Martinez. Begun on September 11, 1913.

48. An investigation of smallpox in San Jose. San Jose was visited on September 16, 1913.

49. An investigation of a human case of rabies in Santa Rosa. Begun on September 16, 1913.

50. An investigation of the source of a typhoid infection supposed to have been contracted in Monterey County. Begun on October 3, 1913.

51. An investigation of a case of optic neuritis developing during Pasteur treatment. Begun on October 26, 1913.

52. An investigation of smallpox cases at Modesto. Modesto was visited on October 28, 1913.
53. An investigation of a human case of rabies at Los Angeles. Reported on October 30, 1913.
54. An investigation of cases of streptococcus infection simulating plague at Kennett. Kennett was visited on November 8, 1913.
55. A bacteriological examination of two samples of wine. Begun on November 11, 1913.
56. An investigation of two cases of trichinosis at the University of California Infirmary. Reported on November 14, 1913.
57. An investigation of an outbreak of epidemic poliomyelitis in Humboldt County. Reported in November, 1913.
58. An investigation of a human case of rabies at Newcastle, Placer County. Reported December 4, 1913.
59. An investigation of the lesions produced by the poisonous tick, *ornithodoros coriaceous*. Reported in December, 1913.
60. An investigation of a human case of rabies in Lincoln. Reported on December 11, 1913.
61. An investigation of the epidemiology of rabies in California and its control. Reported December 13, 1913.
62. An investigation of the apparent recovery of a case of human glanders at Hayward. The patient was visited on January 5, 1914.
63. An investigation of smallpox in Santa Cruz. Santa Cruz was visited on January 10, 1914.
64. An investigation of rabies in Sonoma County. Santa Rosa was visited on January 13, 1914.
65. An investigation of a human case of rabies in Oxnard, Ventura County. Reported on January 24, 1914.
66. An investigation of a case of epidemic cerebrospinal meningitis in Albany. The patient was visited on February 5, 1914.
67. An investigation of the smallpox situation at Cupertino, Santa Clara County. Cupertino was visited on February 14, 1914.
68. A bacteriological examination of eggs brought in cold storage from the Orient. Begun on February 27, 1914.
69. An investigation of the rabies situation in Sonoma County. Santa Rosa was visited on March 19, 1914.
70. An investigation of a human case of rabies in Oakland. Begun on March 23, 1914.
71. A study of the literature on the effect of the septic tank on pathogenic bacteria in sewage. Begun on March 24, 1914.
72. An investigation of the possibility of contamination of the water supply of the city of Chico. Chico was visited on March 26, 1914.
73. An investigation of a case of paralysis following the Pasteur treatment. Begun on March 30, 1914.
74. An investigation of a typhoid outbreak at Hanford. The investigation was begun on April 2, 1914. A carrier was discovered who had infected ninety-three persons.
75. An investigation of the effect of quinine on rabies in dogs. Reported in May, 1914.
76. An investigation into the incomplete sterilization of certain dishes by baking. Reported in May, 1914.
77. An investigation of milk sauces as culture media. Reported in May, 1914.

78. An investigation of cheese responsible for food poisoning. Reported in May, 1914.

79. An investigation by physiological tests of the strengths of tinctures of digitalis and strophanthus found in the market. Reported in June, 1914.

80. An investigation into the bacterial content of tomato products. Reported in June, 1914.

81. An investigation of a case of human plague at Walnut Creek, Contra Costa County. Begun on June 5, 1914.

Research.

Research is being carried on in the laboratory with a view to solving important public health problems. A thorough study was made of two typhoid carriers, and an extensive investigation into the methods of transmission of poliomyelitis (infantile paralysis) was carried on. This latter investigation was made jointly by the Bureau of the Hygienic Laboratory and the Department of Agriculture of the University of California. Professor W. B. Herms of that Department co-operated with the director of the laboratory in planning and carrying on the work.

Instruction in Public Health.

The laboratory has continued to loan to teachers its bacteriological instruction outfits. During the biennial period 49 outfits were issued on request.

Demands for lectures or papers on public health subjects are met by members of the staff when compliance does not interfere with the necessary routine and special investigations of the Bureau. During the biennial period the Director has given 28 lectures or talks on public health topics and the Chief Bacteriologist has given 5 talks.

A considerable part of the correspondence of the laboratory consists of letters of information sent in reply to the practical questions of health officials and the general public.

In addition to the more popular reports to be found in the bulletins of the State Board of Health, the laboratory staff have published in scientific journals eight papers dealing with the work of the Bureau.

Laboratory Staff.

At the beginning of the biennial period, on July 1, 1912, Dr. J. C. Geiger became Chief Bacteriologist, succeeding Miss Esther M. Skolfield, who had been Acting Chief Bacteriologist since March 1, 1912. Miss Skolfield remained on the staff as Assistant Bacteriologist until March 15, 1914, when she resigned and was succeeded by Miss Violet M. Bathgate. On January 20, 1914, Miss Grace A. Macmillan was appointed Laboratory Assistant and was assigned to work in connection with the Wassermann tests for syphilis, and the manufacture of sensitized typhoid vaccine. On January 26, 1914, Dr. Walter V. Brem took charge of the Southern Branch of the State Hygienic Laboratory, succeeding Dr. Stanley P. Black. On April 1, 1914, Miss Vera Brown became Assistant Stenographer on a half-time basis. On July 1, 1913, Mr. J. Taylor Jordan resigned the position of Laboratory Helper. Mr. Judson E. Krueger was employed in this capacity until August 1, 1913, when Mr. Leon C. Banker took the position, which he held until the end of the biennial period.

On June 30, 1914, the laboratory staff was as follows:

Wilbur A. Sawyer, A.B., M.D.	Director
Jacob C. Geiger, M.Ph., M.D.	Chief Bacteriologist
Violet M. Bathgate, B.S.	Assistant Bacteriologist
Grace A. Macmillan	Laboratory Assistant
Walter V. Brem, M.D.	In charge of Southern California Branch
W. W. Cross, M.D.	In charge of San Joaquin Valley Branch
Fred F. Gundrum, M.D.	In charge of Northern California Branch
Florence B. Shackelford	Stenographer
Vera Brown (half time)	Assistant Stenographer
Leon C. Banker	Laboratory Helper

Building and Equipment.

Since its establishment in 1905, the State Hygienic Laboratory has been housed on the campus in Berkeley in rooms assigned to it without charge by the University of California. On October 4, 1913, owing to the overcrowding of the laboratory quarters, the offices and laboratories were moved to rooms on the ground floor of the same building and in a new addition built by the university. In this way the university generously provided for the immediate needs of the laboratory. A special building should be constructed by the state to house in one building the various laboratories of the State Board of Health, including the Food and Drug Laboratory.

Respectfully submitted.

W. A. SAWYER, Director,
Bureau of the Hygienic Laboratory.

REPORT OF BUREAU OF TUBERCULOSIS.

BURT F. HOWARD, M. D., Director.

This bureau has been in operation ten months, having been created by an act of the people of California represented in Senate and Assembly on June 13, 1913, while the director of the bureau did not assume his duties until September 1, 1913.

The object of the bureau, in general, is to institute certain investigations which have for their purpose the attainment of a rational solution of California's tuberculosis problem, and to undertake "the control and eradication of tuberculosis" whenever the time is ripe for such an undertaking.

There are indications that the people of California are awakening to the importance of organized effort to combat this preventable disease which is the chief single cause of death in California, and annually kills over five thousand persons.

Evidence of this awakening as represented in state legislation is as follows:

In 1904 a bill appropriating \$150,000 for a state sanatorium was introduced, but failed.

In 1907 the legislature passed a law requiring the notification of tuberculosis, but not distinct from other communicable diseases. An anti-spitting law was passed, and \$2,000 was appropriated for the dissemination of knowledge to prevent the spread of tuberculosis.

In 1909 the State Board of Health was granted \$2,000 for a tuberculosis exhibition campaign, and was empowered to contract for the treatment of indigent tuberculous residents in private or public sanatoria, the bills to be met by the patient's home county.

This provision for the treatment of incipient tuberculosis is legally in force "until such time as there shall be established by law in this State a state hospital for the medical treatment of persons afflicted with incipient pulmonary tuberculosis.

Various local ordinances indicate interest in this subject, one of the more important being the resolution passed in 1911 by the San Francisco Board of Education, requiring that "all new school buildings to be erected should set aside one or more rooms for open air school purposes."

In 1911 the California Tuberculosis Commission was appointed by the State Board of Health, with an available appropriation of \$5,000 for continuing the education of the public concerning tuberculosis, and conducting certain investigations into the cause and prevention of tuberculosis.

The establishment of the Bureau of Tuberculosis was the result of one of the recommendations of this commission, and its work (as indicated in the accompanying outline Table No. 1) is the first step in the fulfillment of the plan of the commission for a definite program for the prevention of tuberculosis.

**Duties of the Director of the Bureau of Tuberculosis as Specified in the Law
and Assigned by the State Board of Health.**

I. ADMINISTRATION OF DEPARTMENT.

1. Supervision over hospitals, dispensaries, sanatoria, farm colonies and other institutions for tuberculosis. Recommendations for appointments, promotions, dismissals, etc.
2. Attending educational meetings and conferences for the purpose of bringing about the establishment of the above dispensaries, etc.
3. Correspondence.
 - (a) As secretary of the Advisory Board.
 - (b) Educational—Advising officers of the penal and charitable institutions, etc.
 - (c) General—Replying to inquiries regarding the bureau, state laws, hospitals, etc.
4. Preparation of monthly and biennial reports of the work of the bureau.

II. INSPECTION.

- A. Inspection of public tuberculosis institutions.
 - (a) Tuberculosis Department of state insane hospitals.
 - (b) Tuberculosis Department of state prisons.
 - (c) Tuberculosis Department of county hospitals.
 - (d) Tuberculosis Department of Veterans' Home.
- B. Inspection of private tuberculosis institutions.
 - (a) Tuberculosis departments of private hospitals.
 - (b) Private sanatoria.
 - (c) Private dispensaries.
 - (d) Private camps, etc.
- C. Preparation of reports, accounts and correspondence relating to inspections.

III. REGISTRATION OF CASES.

1. Publicity.
 - (a) Informing physicians and health officers of the law (by means of letters, press articles, lectures, etc.).
 - (b) Creating public sentiment in favor of registration (by means of letters, press articles, lectures, etc.).
2. Registration.
 - (a) Filing reports of living cases.
 - (b) Removing from register the names of those who have died.
 - (c) Classification of data obtained.

IV. OTHER DUTIES ASSIGNED BY THE BOARD OF HEALTH.

- (a) Executive, during absence of secretary or other executive officer of the Board of Health.
- (b) Encouraging the establishment of dispensaries by private or municipal funds.
 - Unclassified duties not specified in the law, as inspection of cases, attendance on conferences, medical meetings, investigation of complaints, etc.

EXPLANATORY DATA.

As there is no fund for hospitals, etc., there are at present no administrative duties under paragraph "I," section "1." Paragraph "I," section "2" is intended to cover a portion of the publicity work necessary to the establishment of a comprehensive scheme for combating tuberculosis.

As no Advisory Board has been appointed, there are at present no duties to be performed in the capacity of its secretary. Educational correspondence includes the mailing of printed matter which has for its purpose the prevention of tuberculosis. "Advising officers of the penal and charitable institutions," specified in the law, is included in paragraph I, section 3 (b), because a portion of this work may be done by correspondence.

"Reports relating to inspections" is intended to cover the passage of the law which requires "rating on sanitary construction, enforcement of sanitary measures, adequate provision for medical and nursing attendance, provision for proper food and such other matters of administration as may be designated."

The fund appropriated for the use of the bureau (\$7,500) was so small as to necessarily restrict its operations chiefly to the two points specified in the law, namely, the work of inspection of institutions and promotion of "the complete and proper registration of all tuberculous persons within the State," and whatever has been accomplished this year may be considered as merely preparatory to what is to be undertaken in the years to come.

A list of institutions inspected follows, together with the date when they were inspected and the number of beds available for tuberculosis.

County Hospitals Receiving Tuberculosis, with Tuberculosis Departments or Beds Reserved for Tuberculosis.

Name	Address	Number of beds for tuberculosis.	Inspected
1. Alameda	San Leandro	75	Sept. 25, 1913
2. Butte	Oroville	16	Dec. 11, 1913
3. Calaveras	San Andreas	12	
4. Contra Costa	Martinez	10	Jan. 23, 1914
5. Fresno	Fresno	30	May 1, 1914
6. Glenn	Willows	5	
7. Humboldt	Eureka	10	
8. Imperial	El Centro	10	Apr. 25, 1914
9. Kern	Bakersfield	10	Apr. 30, 1914
10. Kings	Hanford	8	
11. Los Angeles	Los Angeles	200	Oct. 5, 1913
12. Madera	Madera	1	May 1, 1914
13. Marin	San Rafael	6	
14. Merced	Merced	6	May 1, 1914
15. Monterey	Salinas	6	Apr. 13, 1914
16. Napa	Napa	2	Jan. 22, 1914
17. Nevada	Nevada City	1	
18. Orange	Santa Ana	5	Oct. 18, 1913
19. Riverside	Riverside	12	Oct. 16, 1913
20. Sacramento	Sacramento	30	Dec. 19, 1913
21. San Benito	Hollister	10	Jan. 15, 1914
22. San Bernardino	San Bernardino	30	Oct. 14, 1913
23. San Diego	San Diego	25	Oct. 15, 1913
24. San Francisco	San Francisco	170	Sept. 24, 1913
25. San Joaquin	French Camp	41	Dec. 23, 1913
26. San Luis Obispo	San Luis Obispo	1	Apr. 13, 1914
27. San Mateo	San Mateo	4	Jan. 16, 1914
28. Santa Barbara	Santa Barbara	10	
29. Santa Clara	San Jose	34	Sept. 26, 1913
30. Santa Cruz	Santa Cruz	2	Jan. 14, 1914
31. Shasta	Redding	8	
32. Siskiyou	Yreka	4	
33. Sonoma	Santa Rosa	6	
34. Stanislaus	Modesto	6	May 1, 1914
35. Tehama	Red Bluff	3	
36. Tulare	Visalia	4	Apr. 30, 1914
37. Ventura	Ventura	6	
38. Yolo	Woodland	2	May 26, 1914
39. Yuba	Marysville	4	Dec. 1913

Total number of beds..... 825

County Hospitals Which Do Not Have Tuberculosis Departments, or Do Not Reserve Beds for Tuberculous Persons.

Name	Address	Inspected
1. Alpine -----	Markleeville.	
2. Amador -----	Jackson -----	Dec. 30, 1913
3. Colusa -----	Colusa.	
4. Del Norte -----	Crescent City.	
5. El Dorado -----	Placerville.	
6. Lake -----	Lakeport.	
7. Lassen -----	Susanville.	
8. Mariposa -----	Mariposa.	
9. Mendocino -----	Ukiah.	
10. Modoc -----	Alturas.	
11. Mono -----	Bridgeport.	
12. Placer -----	Auburn -----	Nov. 14, 1913
13. Plumas -----	Quincy.	
14. Sierra -----	Downleville.	
15. Solano -----	Fairfield	
16. Sutter -----	Yuba City -----	Dec. 11, 1913
17. Trinity -----	Weaverville.	
18. Tuolumne -----	Sonora.	

It will be observed that our county hospitals make provision of 825 beds for pulmonary tuberculosis, that the private sanatoria provide 732, and that private hospitals provide 102, or a total of 1,659 beds available in the State, besides those in the state insane hospitals, prisons, homes and federal institutions which have about 200 beds for the use of restricted classes only.

As the average number of deaths in the State, from this cause, during 1912 and 1913 was 5,265, and the average duration of the disease may be said to be three years, it may readily be estimated that there are at present in the State over fifteen thousand (15,000) persons who will probably die from tuberculosis. The actual number in whom the disease could be discovered is conservatively estimated at five to ten times the number of deaths, which would make the number of tuberculous persons in California at present from twenty-five to fifty thousand.

Thus it will be seen that existing institutions, both public and private, can care for but a small proportion of the tuberculous, i. e., one in ten of those who are destined to die of tuberculosis, and hence are actively infectious, and perhaps one in twenty of those who actually need hospital care either with the expectation of recovery or for the sake of protecting the family from the danger of an otherwise unavoidable intimate association.

County Hospitals.

Let us consider what our county hospitals are doing with reference to the tuberculosis problem. It will be observed that Los Angeles County provides the largest number of beds for tuberculosis, namely 200. On consulting the tables of deaths it will be seen that the average number of deaths of this county, in the years 1912 and 1913, is 1,606. Evidently the disproportion between the number of beds provided and the demand holds here as well as throughout the State. In this county other provision for hospital care brings the total number of beds avail-

able up to 518, possibly one eighth of the number of those needing the sort of care which can best be given in hospitals.

While the investigations of this bureau reveal the fact that numerically there is a great shortage in the provision of hospital care for tuberculosis, the inspections disclose also wide variations in the character of the provision for these cases, as may be judged from the reports on file with the Secretary of the Board of Health. Many of these hospitals have a department devoted strictly to the care of tuberculous persons, and give these cases the best possible attention. Others make no pretense of either maintaining a department or making the hospital attractive to this class of sufferers. In most of the smaller counties the "county hospital" and the poor farm or almshouse are one, and the opprobrium which is attached to the poor farm prevents free use of the hospital by the tuberculous except as a last resort; consequently the class of patients found in our county hospitals is usually advanced in the disease.

Thirty-nine county hospitals reserve beds for tuberculous persons, the total amounting to 825 beds. Eighteen make no special provision for the tuberculous, though when cases are discovered among the inmates they are sometimes assigned to private rooms or tents.

Private sanatoria and private hospitals receiving tuberculosis provide for over 700 cases. In the main they are of great benefit to the community in which they exist, both from an educational standpoint and because of the prevention of infection by the actual number of active cases withdrawn from the community.

Institutions conducted as a whole or in part by the State have not in the past made complete provision for isolation of tuberculous cases. There is at present, however, a distinct tendency to correct this defect, and a portion of the work of this bureau has been to assist in bringing about a change for the better in this respect.

As but one inspection has been made in the majority of cases, it is impossible to report accurately at this time as to the benefit of state inspections of county hospitals, private hospitals, and sanatoria. Recommendations accompanied the majority of all reports submitted, duplicates being sent to superintendents of institutions inspected, as well as to the Board of Health. The following extract from one of these reports will serve as an example of the type of recommendations sent to some of the better county hospitals:

We have here a well made tuberculosis hospital, well furnished and well kept, and yet there were but 12 beds occupied by tuberculous patients out of the 42 available. With 269 deaths in 1910 and 1911 in the county from pulmonary tuberculosis one would naturally suppose that there might be at least 100 applicants waiting for an opportunity to be treated here.

It might be well to consider possible causes for this discrepancy with a view to providing better results here and avoiding mistakes elsewhere, if any can be discovered.

First—The site is a little remote from friends and relatives of patients. This would not be so noticeable if there were electric car service or if steam cars were more convenient.

Second—While the farm is large enough to afford privacy to the institution as a whole, the tuberculous patients are too near the others for the sort of privacy demanded by the long stay required in this disease. This is particularly noticeable because of the proximity of the buildings assigned to smallpox and other contagious diseases, which are so near that patients are sometimes advised not to use the stairway

and porch at that end of the tuberculosis building which is near the contagious wards. This in itself probably results, in some cases, in a feeling of uneasiness and restraint.

Third—An ideal institution of this size, if located by itself, would be provided with an assembly room and library to facilitate the entertainment of patients. There would be no serious objection to the use of a library by tuberculous patients in common with other patients, if books were properly protected and disinfected.

Fourth—It frequently is the case, and may possibly be so here, that where patients are treated in a general hospital they feel that they do not receive their proportion of medical care because acute cases which remain a short time in the hospital make such insistent demands on the time of the attending physicians. This difficulty has been met in some institutions by having a staff of visiting physicians who are specialists in tuberculosis or at least particularly interested in the subject of tuberculosis. This feature is also desirable as a means of increasing the interest in tuberculosis among physicians and providing an opportunity for special study of this disease.

Fifth—Nurses in training should have the advantage of special instruction in tuberculosis nursing, and an effort be made to place this kind of nursing on a par with other branches of nursing service. If possible there should be a night nurse on duty when there are advanced cases, or at least a nurse subject to call.

The object in general of these recommendations is to make the patients feel that they are being treated along scientific lines which will result in recovery where recovery is possible.

Such provision should be made for their social life as to make a prolonged stay endurable, if not enjoyable. This is perhaps the most difficult problem of all, and with the heterogeneous types which at present apply for admission is not completely practicable. However, it is probably more practicable and better to induce patients to remain for a proper time than it would be to enforce compulsory residence if there were laws permitting such procedure.

As the inspection of institutions constitutes an important part of the work of the bureau, perhaps the best way to give an idea of this work will be to summarize a portion of the reports.

Recommendations which have been made to county hospitals have in general included the following points:

Site.—Where the county is small or thinly populated it is recommended that it unite with a neighboring county or counties in erecting and maintaining a tuberculosis hospital, as recommended by the Tuberculosis Commission.

That the site selected be as near the communities served as practicable and accessible by street car if near a large town, except in such cases as those in which a marked climatic advantage is to be obtained by a more remote site within the county, as the foothills in counties where the summers are excessively hot.

That the tuberculosis hospital should be independent of the poor farm and remote from it, where possible.

If built on the county hospital grounds that it should not be grouped with the infectious disease wards in the rear of the main buildings, but should have a site with a pleasant outlook, including trees and lawns especially where tents, tent houses, or pavilions are used.

Construction.—Permanent buildings are advised in preference to temporary cheap structures as being less expensive to operate and more comfortable for the average case received which is usually well advanced in the disease. However, in many parts of the State, under favorable climatic conditions simple pavilions properly furnished are considered appropriate.

Small wards (six to eight beds), a reasonable proportion of private rooms for the very ill or dying, and either private closets or lockers for all have been advocated.

In some instances the cottage plan is recommended, but usually as accessory to a central plant, either for the purpose of housing female patients who are oftentimes in the minority, or for the sake of providing private rooms in connection with hospitals which have an inadequate supply, or finally for the purpose of offering specially attractive accommodations to patients who desire to pay a part or all of the expense of their maintenance. In most instances buildings of a single story are preferred, and buildings over two stories are considered undesirable because they make an easy outdoor life difficult.

Equipment.—Equipment is recommended which will make the outdoor life comfortable and practicable, such as an abundance of clothing, both personal and for bedding, reclining chairs and appropriate shade.

Such medical equipment as is especially necessary for this class of cases, also a proper laboratory equipment, and provision for disposal of the sputum.

Administration.—Medical and nursing attendance. Where possible it is advised that there should be a resident medical officer, or at least a registered nurse. A consulting staff is considered desirable in all cases. A nurse for each ten bed patients is recommended; one for each fifteen ambulant patients, and one registered nurse for each fifty patients.

Aside from the medical management other administrative matters touched upon are as follows: Are pay patients desirable from an administrative standpoint? If patients are allowed or required to pay, will this increase the number of self-respecting citizens who apply for admission, raise the tone of the institution and induce patients to come early in the disease, and even make possible the provision of increased accommodations? Some hospitals are criticized as being overcrowded, and larger hospitals advised. The plan of caring for patients by per capita contracts is not generally recommended except as provided for by the "Act to provide for the medical treatment of indigent residents afflicted with incipient pulmonary tuberculosis," of April 14, 1909. While it is possible to properly conduct a tuberculosis ward in connection with a general hospital it is usually recommended that the tuberculosis department have a building apart from the general hospital, free from the oppressive atmosphere of the latter and so attractive to early cases.

In general the recommendations which have been made in connection with reports of inspections have aimed to be along modern and approved lines, which are said to be "simple construction, good food, cleanliness, rest or light employment, and a happy, friendly atmosphere."

State Institutions.

Prisons.—Under the law requiring that the department of tuberculosis shall "advise officers of the penal and charitable institutions regarding the proper care of tuberculous inmates," an investigation of conditions in the state prisons was made and extended to certain county prisons and city jails, disclosing the fact that some of the latter were so constructed and conducted as to constitute a menace to the state prisons by sending to them patients destined to develop tuberculosis as a result of the insanitary conditions of the first imprisonment. It

was found that there was no state inspection of a large group of these smaller prisons, because of lack of appropriation for this purpose and the investigations begun by this department were conducted only as opportunity offered in connection with inspections of county hospitals and other institutions treating tuberculosis which could be visited on the same trip and without loss of time. These investigations, however, were discontinued upon the receipt of legal advice as to the duties of this bureau.

The two prisons of California have tuberculosis problems which are somewhat similar, owing to the fact that both institutions were constructed in part at a time when less attention was given to sanitary detail than at present. While even some of the modern structures fall short of the ideal as to the admission of light, the older cells, which are still in use and often overcrowded, are dark and poorly ventilated. The management is well aware of these defects and is making every effort to improve conditions so far as practicable. There is still much room for improvement in the matter of overcrowding.

Increased space is particularly desirable in order that receiving cells may be available for the isolation of prisoners pending physical examination. Segregation of open cases of tuberculosis is practiced in both prisons, and San Quentin is enlarging and improving the tuberculosis wards. The fact that the hours of work and rest are well regulated, apparently has a tendency to prevent the development of tuberculosis which would undoubtedly result if patients were continuously confined in the cells which they occupy at night. The good effect of this plan might be materially increased by an improvement of the working conditions of some of those following indoor occupations.

State Hospitals.—Some of the faults referred to in connection with the prisons are also true, in a lesser degree, of the insane hospitals. While some of the construction is not what it should be in respect to making provision for the admission of light and air, yet this defect would work but little harm were it not for the constant tendency to overcrowding. The older buildings were generally planned with a liberal amount of air space and the patients' rooms were usually fairly well lighted. Some of the buildings erected in recent years show a tendency to undue economy in restricting the space allotted to each patient. Considering the favorable climate of California institutions of this character should make every effort to provide an almost constant outdoor life for all patients, as this would tend to lower the death rate from tuberculosis without being objectionable from the standpoint of the psychiatrist. While various recommendations have been made respecting conditions predisposing to tuberculosis in the state insane hospitals, it is the purpose of this bureau to confine further inspections strictly to departments devoted to the care of tuberculosis when these shall have been established.

Soldiers' Home.—Increased accommodation for the care of tuberculous inmates was recommended for this institution because of the fact that present accommodations were not adequate for the complete segregation of this class of patients. An entirely new ward is very much needed.

Private Charities.

In the history of the tuberculosis movement it has often been the case that measures undertaken for the prevention of tuberculosis have been originally instituted by private philanthropy, and the burden later assumed by the local or state government. Hence this report would be incomplete without reference to certain well established charities in this state.

Barlow Sanatorium opened September 1, 1903, for the care of the indigent tuberculous of Los Angeles County, who have been resident in the county for one year, and who are in no condition for active work. This institution was found to have developed into a remarkably efficient and complete institution, during this tenth year of its existence treating and discharging 61 cases. The average number of patients in the sanatorium throughout the year was 40, there being 43 beds in all. Patients who have the best chance for improvement or recovery are chosen from the waiting list, and a charge of not over \$5.00 per week is made to patients or friends of patients. The per capita weekly cost this year was \$9.11 and the annual deficit met by subscription, including money raised for improvements and new buildings amounted to \$13,129.13.

La Vina, near Pasadena, opened July 26, 1909, receiving all classes of cases who are residents of the vicinity, renders the public remarkable service by removing from the community cases which would otherwise be a source of infection, particularly heads of families who are a burden as well as a danger to their children. The maximum charge for resident patients, who are able to pay, is \$7.00 per week; if this is a hardship they may pay less, and no one is refused or discharged for want of means. Non-residents are received in emergencies at actual cost. The original cost and the large annual deficit of about \$15,000.00 has been met by private charity.

Arequipa, Marin County, opened September 9, 1911, for wage-earning women. While it does not call itself a charity it is in reality to be classed with the two preceding, in that it offers good sanatorium treatment at a moderate cost, a plan which serves to preserve the self-respect of the individual; at the same time the institution demands no inconsiderable donations of money, time and supplies.

Other institutions have been attempted by private charitable organizations, but have been obliged either to vary the cost of accommodations to such an extent as to remove it from this class of essentially charitable institutions or to discontinue owing to inability to meet the deficit. The three institutions mentioned might each serve to offer an example of desirable features which may well be incorporated in public tuberculosis hospitals.

Other private charities inspected are the dispensaries, of which there are six in California, one at each of the following places named in the order of their founding: Los Angeles, San Francisco, San Diego, Oakland, Berkeley, and San Jose. During the greater part of their existence these dispensaries, which have for their primary object the discovery of cases of tuberculosis, the education of the community, the aftercare and employment of patients, and assistance to their families, have been supported mainly by private charity and consequently have been obliged to place more emphasis on those lines of work which are obvious and make the strongest appeal. Upon inquiry found that these institutions are willing to cooperate with

the State in the matter of epidemiological and sociological studies which may serve as a basis for future scientific handling of the tuberculosis problem.

Private Tuberculosis Sanatoria.

Name	Address	Number of beds for tuberculous.	Inspected
1. Alta	Alta, Placer County.....	35	Sept. 9, 1913
2. Arequipa	Fairfax, Marin County.....	40	Jan. 19, 1914
3. Barlow	Los Angeles	43	Oct. 3, 1913
4. California	Belmont, San Mateo County.....	50	Jan. 16, 1914
5. School for the tuber- culous	Colfax, Placer County.....	60	Sept. 10, 1913
6. Colfax	Colfax, Placer County.....	20	Sept. 2, 1913
7. Desert Inn	Palm Springs, Riverside Co....	25	Oct. 16, 1913
8. Griffith & Tucker.....	Riverside	10	Oct. 17, 1913
9. Dr. King's	Banning, Riverside County.....	25	Oct. 15, 1913
10. Kings Daughters Home	Oakland, Alameda County.....	7	Jan. 12, 1914
11. Mrs. Marshall	San Bernardino	15	Oct. 14, 1913
12. Martyn	Altadena, Los Angeles County..	20	Oct. 11, 1913
13. The Oaks	Los Gatos, Santa Clara County..	30	Jan. 13, 1914
14. Dr. Pottenger's	Monrovia, Los Angeles County..	100	Oct. 4, 1913
15. St. Thomas Aquinas....	Mentone, San Bernardino Co....	12	Oct. 14, 1913
16. Southern Sierras	Banning, Riverside County.....	20	
17. Southern California....	Los Angeles	20	
18. La Vina	Los Angeles	90	Oct. 11, 1913
19. I. O. O. F. Sanatorium.	Los Angeles	50	Apr. 24, 1914
20. "The Shepard Sana- torium" (formerly El Reposo)	Sierra Madre	60	
Total number of beds.....		732	

Private Hospitals Receiving Pulmonary Tuberculosis.

Name	Address	Number of beds for tuberculous.	Inspected
1. Hazel Hawkins Memo- rial	Hollister, San Benito County..	4	Jan. 15, 1914
2. French	San Francisco	14	Jan. 17, 1914
3. Kaspere Cohn	Los Angeles	10	Oct. 12, 1913
4. St. Caroline	Redding, Shasta County.....	14	
5. Southern Pacific	San Francisco	22	Jan. 17, 1914
6. Goodman's	Sutter Creek, Amador County..	3	
7. Santa Rita Hospital....	Los Angeles	35	
Total number of beds.....		102	

State Institutions.

Name	Address	Number of tuberculosis patients	Inspected
1. San Quentin State Prison	Marin County	20	Jan. 20, 1914
2. Folsom State Prison	Sacramento County	10	Dec. 8, 1913
3. Preston School of Industry	Ione, Amador County	*	Dec. 30, 1913
4. Stockton State Hospital	San Joaquin County	*	Dec. 31, 1913
5. Napa State Hospital	Napa County	*	Jan. 21, 1914
6. Agnews State Hospital	Santa Clara	*	Jan. 16, 1914
7. Southern California State Hospital	Patton, San Bernardino Co.	*	Oct. 14, 1913
8. Sonoma State Home	Eldridge, Sonoma County	30	Mar. 7-9, 1914
9. Mendocino State Hospital	Ukiah, Mendocino County		
10. Veterans' Home	Yountville, Napa County	36	Jan. 21, 1914

*Tuberculosis patients are received, but there is no definite number of beds assigned.

As will be seen by referring to the tables, there are a number of private general hospitals which have tuberculosis departments. A feature which this Bureau has aimed to encourage because it increases the accommodations for those suffering from this disease who are so often excluded from general hospitals, or received under protest, to the detriment of the morale of the institution. A well conducted tuberculosis department of a general hospital is of great benefit to the general public, both by its education of nurses in training to a proper understanding of methods of treatment and prophylaxis, and because it has a tendency to induce a reasonable and humane attitude toward the consumptive. Again, where such hospitals are used for clinical purposes by medical students, the presence in them of pulmonary tuberculosis is an opportunity for very necessary education in diagnosis.

Registration.

Realizing that proper registration of tuberculosis cases is essential to any plan for the control or eradication of tuberculosis, this Bureau has aimed to accomplish as much as possible in this line with the limited funds available. An effort has been made to bring the matter to the attention of physicians, first by sending to 284 health officials a letter calling attention to the law; later by writing to the secretary of each of the county societies, requesting that the subject of registration be given special attention in the local society, and that the letter be read to each society. This letter was also published in the "California State Journal of Medicine." The subject of registration was presented briefly to the health officers at the October meeting in Venice, and also to the San Joaquin County Medical Society and the San Diego County Medical Society. Wherever possible use has been made of local tuberculosis societies or personal appeal with the purpose of educating the public in the utilization of the importance of this work.

Signed letters have been mailed to 2,113 physicians and health officers enclosing blanks for the reporting of tuberculosis. As funds do not permit dealing directly with all physicians in the State, in the larger cities it has been left to the health officers to distribute report blanks and to aim to stimulate morbidity returns. The results of this work are shown by an increase in the number of cities and counties reporting tuberculosis, which has been very gratifying, and also by a noticeable increase in the number of cases reported. By referring to the accompanying tables it will be seen that morbidity reports are available for 1912 and 1913. There are no records of tuberculosis morbidity previous to 1912 on file in this office.

Tuberculosis Morbidity.
Cases of Tuberculosis Reported.

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total cases	Total deaths
1912	362	260	750	166	181	214	115	159	129	148	206	194	2,384	5,123
1913	192	33	203	200	141	120	182	163	204	410	386	339	2,573	5,402
Average of 1912-13.....	277	146	226	183	161	167	148	161	166	279	296	266		
1914	515	418	430	519	424	433	*2,739							

*Total for six months.

Total reported September, 1913, to June, 1914, inclusive.....4,078

As the work of this Bureau did not begin until September, 1913, it is too soon to draw conclusions or to make extensive comparisons. It may be noted, however, that deaths are much more fully reported than cases, and that during the ten months since the establishment of this bureau, the number of cases reported shows a tendency to approach that of the annual death rate from tuberculosis.

Great pains have been taken to devise a standard card for making these reports which shall furnish the most important sociological and medical data. A circular letter was sent to a number of eastern states and a study made of the replies received and the results compared with blanks at present in use in this State. While not perfect the card seems to be bringing in very good returns. It is the plan of the bureau to distribute no more cards directly to physicians, but to work through local health officers, as this is the method indicated by the law. While it is not the intention of the bureau to publish the names of patients, these are essential for identification in a disease which is of such long standing as tuberculosis, and one in which there is so much migration. The form of card used is as follows:

CALIFORNIA STATE BOARD OF HEALTH
Bureau of Tuberculosis

REPORT OF A CASE OF TUBERCULOSIS

The State law requires you to report all cases of Tuberculosis. Write plainly with non-fading ink.	Name of patient	Age	Sex	Single Married Widowed Divorced Separated	
	Street and No.	City	County		
	Previous Address	Home address			
	Dwelling: detached, flat, tenement, boarding, hotel, hospital, other				
	Housing: good, fair, poor.	Financial condition: Independent, wage earner, indigent.			
	Occupation	yrs.	mos.	Type of Disease Tuberculosis of Lungs Larynx Lymph Glands Peritonaeum Bones Intestines Skin	
	Occupational conditions: Good, fair, poor.	Former occupation			
	yrs.	mos.	Nativity: State		
	Foreign	Race or Color			
	How long resident of Cal.?	City?	County?		
Family: No. persons	Has family received sanitary instructions?				
Tuberculosis: in father, mother, brothers, sisters, husband, wife, children, others.					
Bacteriological examination T. B. pos., neg., by whom.					
Approximate date of Diagnosis			Prognosis		
Result					
Physician's signature			Date		

NOTICE.—The attending physician will fill out the above form and return to the local health authority for transmission to the State Board of Health. Draw a line through words not needed.

It will be seen that by underlining certain words or drawing a line through words that are not needed, very little writing is necessary to give a report which will supply much useful information to the department.

Approximately 4,000 names and addresses have been reported since January, 1913, and have been transcribed upon cards for the purpose of making a study of the location and migration of individuals and eliminating the records of those who have died. As there are approximately 3,000 deaths each month which must be compared with the register, it is a matter requiring no inconsiderable clerical labor to keep this tuberculosis register a record of the living.

Much of the work of this bureau is of too heterogeneous a nature to be included in a report of this kind. Certain inspections, investigations and executive duties have been undertaken by the director in his capacity as assistant secretary. In this capacity also he attended the Surgeon General's Conference, June 18th, a meeting of state and territorial boards of health, June 19th and 20th, and a conference with the Commissioner of Indian Affairs, June 20th, in Washington, D. C., and the annual meeting of the American Medical Association, June 22d, in Atlantic City, New Jersey.

Following this he made an investigation of the methods used in Pennsylvania for the control of tuberculosis, including an inspection of the three state sanatoria, numerous dispensaries, as well as a study of methods in use in the central offices at Philadelphia and Harrisburg. Conferences were held with officers of the National Association for the Study and Prevention of Tuberculosis at New York and with prominent officials and workers in Massachusetts, New York, Illinois and Colorado, and also inspections made of hospitals, dispensaries and of methods used in these states for the treatment or control of tuberculosis.

While in Washington an opportunity was taken to inquire into the status of a bill known as the Shafroth-Calloway Bill which has been introduced as the result of the activities of the Texas Anti-Tuberculosis Association, and provides for the establishment of federal hospitals for the treatment of strangers in the southwest. California has been asked to support to this measure as a means for equalizing the burden

which it must bear in the care of indigent strangers attracted by the reputation of its climate.

The following papers have been prepared during the year:

"Rating the Efficiency of Hospitals and Institutions for the Tuberculous" (read at Venice, October, 1913).

"A Word to Teachers on Health," issued by Edward Hyatt, Superintendent of Public Instruction, in the series of leaflets on Health Conservation authorized by the legislature of 1913.

"A New Movement in Public Health Work," read before the Sacramento Nurses' Association, January 7, 1914.

"The Tuberculosis Commission and the Tuberculosis Bureau," read before the San Joaquin County Medical Society, January 30, 1914.

"Registration," written for the Colfax "Tea Bee."

"The Bureau of Tuberculosis, its Work and Plans," read before the annual meeting of the California Association for the Study and Prevention of Tuberculosis, held jointly with the forty-fourth annual meeting of the Medical Society of the State of California, Santa Barbara, April, 1914.

The following reports of inspections have been filed with the secretary of the Board of Health:

Reports of Institutions Submitted.

- | | |
|--|--|
| 1. Alameda County Hospital. | 41. Dr. King's Sanatorium. |
| 2. Clinic of the Alameda Society for the Study and Prevention of Tuberculosis. | 42. Sacramento County Hospital. |
| 3. Berkeley Dispensary. | 43. H. Hunziker Reduction Works. |
| 4. King's Daughters Home. | 44. Rapetti Reduction Works. |
| 5. Amador County Hospital. | 45. Sacramento County Prison. |
| 6. Preston School of Industry. | 46. Sacramento City Prison. |
| 7. Butte County Hospital. | 47. Folsom State Prison. |
| 8. Butte County Prison. | 48. San Benito County Hospital. |
| 9. Contra Costa County Hospital. | 49. San Bernardino County Hospital. |
| 10. Fresno County Hospital. | 50. St. Thomas Aquinas. |
| 11. St. Thomas Hospital, Imperial County. | 51. Southern California State Hospital. |
| 12. Kern County Hospital. | 52. Mrs. Marshall's Home. |
| 13. Los Angeles County Hospital. | 53. San Diego County Hospital. |
| 14. La Vina Sanatorium. | 54. San Diego Society for the Study and Prevention of Tuberculosis. |
| 15. Broadway Dispensary. | 55. San Francisco County Hospital. |
| 16. Loma Linda Free Dispensary. | 56. Southern Pacific General Hospital. |
| 17. Barlow Sanatorium. | 57. French Hospital. |
| 18. I. O. O. F. Sanatorium. | 58. Jackson Street Dispensary. |
| 19. Bethlehem Institute. | 59. San Joaquin County Hospital. |
| 20. Pottenger Sanatorium. | 60. San Joaquin County Jail. |
| 21. Martyn's Sanatorium. | 61. Stockton State Hospital. |
| 22. Kaspare Cohn Hospital. | 62. San Luis Obispo County Hospital. |
| 23. Hazel Hawkins Memorial Hospital. | 63. San Mateo County Hospital. |
| 24. Madera County Hospital. | 64. California Sanatorium. |
| 25. Marin County Jail. | 65. Santa Clara County Hospital. |
| 26. San Quentin Prison. | 66. Agnews State Hospital. |
| 27. Arequipa Sanatorium. | 67. Santa Clara County Association for the Study and Prevention of Tuberculosis. |
| 28. Merced County Hospital. | 68. Santa Clara County Jail. |
| 29. Monterey County Hospital. | 69. The Oaks Sanatorium. |
| 30. Napa State Hospital. | 70. Santa Cruz County Hospital. |
| 31. Napa County Hospital. | 71. Sonoma State Home. |
| 32. Soldiers' Home, Yountville. | 72. Stanislaus County Hospital. |
| 33. Orange County Hospital. | 73. Sutter County Hospital. |
| 34. Placer County Hospital. | 74. Tulare County Hospital. |
| 35. Alta Sanatorium. | 75. Yolo County Hospital. |
| 36. Colfax Hospital. | 76. Yuba County Hospital. |
| 37. Colfax School for the Tuberculous. | 77. Yuba County Jail. |
| 38. Riverside County Hospital. | 78. Marysville City Jail. |
| 39. The Desert Inn Sanatorium. | |
| 40. Griffith & Tucker Sanatorium. | |

REPORT OF BUREAU OF REGISTRATION OF NURSES.

ANNA C. JAMME, Director.

The act authorizing the establishment of a department of examination and registration of graduate nurses, under the State Board of Health, was approved June 12, 1913. In accordance with its organization, this department became a bureau of the State Board of Health, and according to the provisions of the law a director was appointed on October 4, 1913, and the work of the bureau was immediately commenced.

The organization embraces:

1. REGISTRATION.

A. Registration of applicants without examination, under section 3 of the law.

B. Registration of applicants without examination who are already registered in another state or foreign country, under section 8.

C. Registration of applicants with examination, who are graduates of accredited schools for nurses, under section 4.

2. INSPECTION OF TRAINING SCHOOLS.

3. ACCREDITING OF TRAINING SCHOOLS.

4. EXAMINATION.

5. DEVELOPMENT.

Four thousand eight hundred and thirty-three applicants were registered and certificates issued, under section 3. These applicants were obliged to qualify by presentation of their diploma or a certificate signed by the present superintendent of the training school in which they received their course of instruction. This certificate testified to a general training, good moral standing and completion of theoretical and practical course. A certificate of health signed by a physician accompanied the application.

The registration of applicants who are already registered in another state or foreign country is required in order that such applicants may be known as "Registered Nurses" and use the title R. N. after their name in this state. Before such registration is granted, it is first ascertained if the laws of the state or foreign country issuing the certificate of registration are equivalent to those provided for by the California law. It is further ascertained if the applicant is or intends to become in good faith a resident of this state.

The inspection of training schools for nurses includes a yearly inspection by the director of the bureau. This inspection includes a study of the conditions under which the pupils receive their training; the character of the hospital, and if it affords a general training; its capacity; nature of its service and its equipment. Educational requirements for the admission of pupils to the training schools; the number and qualifications of the nurse instructors and the subjects taught by class and on. The staff of medical lecturers; equipment for teaching x-ray rooms, library, diet kitchen, laboratory, etc. The nature of instruction, the plan followed in practical and theoretical

work and time allowed for practical experience in each department of the hospital.

Inspection is made for the purpose of accrediting the schools maintaining the standard required. A report of each inspection is made to the State Board of Health. The requirements for training schools for nurses are as follows:

The school for nurses or the hospital with which it is connected must be either incorporated or be conducted by a public body.

The hospital must have a capacity of not less than 35 beds and a daily average of 25 patients.

The hospital must afford proper facilities for conducting a school for nurses. It must provide experience in the following departments of nursing: Medicine, Surgery, Obstetrics, and Pediatrics. It must provide a systematic course of theoretical instruction in medical, surgical and obstetrical nursing and the divisions under these major subjects.

Due attention must be given to the home life of the student. There must be a living room, a class room, a demonstration room and adequate equipment for teaching purposes. There must be a sufficient number of airy sleeping rooms; individual rooms are recommended. There must also be special provision for night nurses' rooms.

The diet must be simple, wholesome, well cooked and ample.

The head of the training school must be a registered nurse and must possess qualifications requisite for the administration of the school; she must have ability for teaching, she must be capable of guiding the students in moral discipline and of maintaining a high standard of educational and moral efficiency in the school.

A force of instructors must be maintained sufficient and competent for the instruction herein specified.

A complete record must be kept of the students in the school; their qualifications for admission; their class and lecture work; their practical work; their moral standing and general ability and efficiency.

ADMISSION.

Candidates for admission to training schools for nurses should present the following evidence:

1. A complete high school education, or a two-year high school course or its equivalent in a recognized school, together with two years of special study, or an occupation that would be considered preparatory to the study of nursing.

2. Home training and influences fitted to form good moral character and lay the foundation for the future work of the nurse.

3. Good physical condition. A complete physical examination must be made by a physician before application is accepted. Physical and mental development shall be taken into consideration in connection with the age of the candidate, but, in general, it is advised that a pupil shall not be under 20 years or over 35 years of age.

It is recommended that students shall be admitted in *classes* at stated periods during the year.

COURSE OF INSTRUCTION.

The course of instruction, theoretical and practical, must cover a period of three years in the training school.

When schools can not provide opportunity for practical experience in any one major branch, they must affiliate with other approved schools giving the required experience. The studies shall be as follows:

	Classes. hours	Lectures. hours
1. Nursing ethics -----	10	-----
2. Anatomy -----	10	12
3. Physiology -----	8	8
4. Hygiene -----	6	6
5. Bacteriology -----	6	6
6. Dietetics -----	12	12
7. Materia medica -----	10	8
8. Urinalysis -----	-----	8
9. Medicine -----	12	8
10. Surgery -----	12	8
11. Obstetrics -----	15	10
12. Pediatrics -----	12	10
13. Contagion -----	8	12
14. Mental diseases -----	4	4
15. Eye, ear, nose and throat -----	-----	8

PRACTICAL EXPERIENCE.

	Months
1. Preparatory course -----	3
2. Medical nursing -----	4
3. Surgical nursing -----	4
4. Operating rooms, dressing rooms and dispensary -----	4
5. Obstetrical nursing -----	4
6. Children -----	3
7. Contagion -----	3
8. Dietetics -----	2
9. Night duty -----	4
10. Vacation -----	2
11. Open time -----	3

In the instruction of male nurses, hospitals shall provide lectures and practical experience in genito-urinary diseases instead of obstetric nursing.

Graduates of training schools complying with the above requirements, who have completed with credit the three years' work outlined, and have received the diploma of the school, will be eligible for examination by the State Board of Health. Candidates who pass, successfully, this examination will be entitled to the certificate of Registered Nurse.

RECOMMENDATIONS.

The State Board of Health recommends the following considerations with a view of raising the educational and technical standard of training schools:

1. When a school is so situated and endowed with facilities as to be able to enlarge the curriculum, it is unhesitatingly recommended to do so.

2. Where schools are small and unable to obtain the necessary equipment they shall form a connection with a high school or college for some of the required studies, as chemistry, hygiene, anatomy or dietetics.

3. Whenever practicable, lectures and classes should be held during the day instead of the evening.

4. There shall be a study room provided where there is absolute quiet.

5. There shall also be a recitation and lecture room.

6. There shall be special time set aside each day for study.

7. Emphasis shall not be placed on the number of lectures, but on classes, demonstrations, and laboratory work; also, on the written and oral quiz on each lecture.

8. There shall be a special instructor of nurses in each school. Teaching requires time for preparation which the superintendent of nurses, who may also be the superintendent of the hospital, is unable to give to it.

9. The classroom study shall be properly correlated with the practical opportunity offered in the wards and rooms of the hospital.

10. Good reference libraries shall be established, and a definite outline of required reading on subjects allied to nursing prescribed during the course.

11. Social diversions as offered by good drama, opera, concerts, musicales and lectures should be encouraged and special forms of recreation should be provided in the nurses' home.

12. Whenever possible, student government should be maintained. Students should be regarded as *women* and capable of maintaining dignity in all matters pertaining to the moral and social atmosphere of their home.

This standard curriculum has been established in order that uniform methods of teaching may be adopted in the preparation of pupils for state examination.

The examination of candidates for registration will be held according to section 2, of the law, which states that such examination shall be held every six months. Candidates shall be examined in the following subjects:

Anatomy and physiology.
Hygiene.
Bacteriology.
Materia Medica.
Urinalysis.

Children's diseases.
Contagious diseases.
Medical nursing.
Surgical nursing.
Obstetrical nursing.
Ethics.

There are in the state eighty-three schools for nurses, and upwards of eighteen hundred pupils at present in training in these schools. Forty-nine have been inspected and a report of each submitted to the board. Of the number reported, twenty-nine are complying with the requirements of the law and have been accredited by the board for a period of one year. The remaining number will be accredited as they meet the requirements.

During the first year of its work, the bureau has come in touch with every hospital, sanitarium and training school in the state. It has sought to aid schools where deficiency exists in the course of instruction and practical experience as also to promote the better housing and care of nurses during their period of training.

Addresses and talks have been given by the director, on request to graduate nurses organizations, to pupils in training and to other organizations on the work of the bureau.

The development of the work will embrace the following:

1. Establishing uniform methods of teaching in the schools for nurses in the state.

2. Assisting the schools located in towns and rural districts, to meet requirements by affiliation for a definite length of time with larger institutions, where a wider experience may be obtained.

3. To advocate preliminary education relative to the study of nursing in high schools and colleges of the state.

4. To advocate the special preparation of nurses for teaching in schools of nursing.

TWENTY-FOURTH BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

CALIFORNIA

FOR THE

Fiscal Years from July 1, 1914, to June 30, 1916



**CALIFORNIA
STATE PRINTING OFFICE
1916**

California State Board of Health

Membership of the Board

George E. Ebright, M. D., President	San Francisco
Fred F. Gundrum, M. D., Vice-President	Sacramento
Wilbur A. Sawyer, M. D., Secretary, Executive Officer	Sacramento
Wm. LeMoyné Wills, M. D.	Los Angeles
Edward F. Glaser, M. D.	San Francisco
Adelaide Brown, M. D.	San Francisco
Robert A. Peers, M. D.	Colfax

Bureau of Administration

Sacramento

Wilbur A. Sawyer, M. D., Secretary and Executive Officer, DIRECTOR	
Kemper B. Campbell, LL. M., Los Angeles	Attorney
L. B. Mallory, A. B.	Assistant to the Secretary
Guy P. Jones	Morbidity Statistician
Edward T. Ross	Sanitary Inspector
Mabelle G. Bush	Financial Clerk
Gemma F. Martina	Stenographer of the Board

Bureau of Communicable Diseases

State Hygienic Laboratory, Berkeley

James G. Cumming, M. D., Dr. P. H. Epidemiologist and DIRECTOR	
J. C. Geiger, M. D.	Assistant Director
William B. Herma, M. S.	Consulting Parasitologist
Frank L. Kelly, M. D., Gr. P. H.	Assistant Epidemiologist
H. F. Senftner, M. D., Dr. P. H.	Assistant Epidemiologist
Ralph W. Nauss, M. D., Dr. P. H.	Assistant Epidemiologist
Violet M. Bathgate, M. S.	Bacteriologist
Grace A. Macmillan	Bacteriologist
Walter V. Brem, M. D.	Bacteriologist, Los Angeles
W. W. Cross, M. D.	Bacteriologist, Fresno
J. R. Snyder, M. D.	Bacteriologist, Sacramento

Bureau of Vital Statistics

Sacramento

George D. Leslie, Ph. B.	DIRECTOR
Edna A. Morton	Deputy Statistician

Bureau of Tuberculosis

Sacramento

Edith L. M. Tate, B. L.	DIRECTOR
-------------------------	----------

Bureau of Sanitary Engineering

Berkeley

Chester G. Gillespie, C. E.	Chief Engineer and DIRECTOR
Charles Gilman Hyde, C. E.	Consulting Engineer
Frank Bachmann, B. S.	Chemist and Bacteriologist
Ralph Hilscher, C. E.	Assistant Engineer

Bureau of Foods and Drugs

Berkeley

Erwin J. Lea, M. S.	DIRECTOR
Myer E. Jaffa, M. S.	Consulting Nutrition Expert
August F. Glaive, Ph. C.	Assistant to the Director and Chemist
A. R. Mehrtens, Ph. C.	Chemist
George Ahlers	Chemist
Frank Oakley, Los Angeles	Inspector
Henry R. Robbins, San Francisco	Inspector
Wm. H. Gourley, San Francisco	Inspector
M. P. Duffy, San Rafael	Inspector
Henry C. Peters, Oakland	Inspector
C. B. Heizer, Oakland	Inspector
F. W. Newberg, Oakland	Inspector

Bureau of Registration of Nurses

Sacramento

Anna C. Jammé, R. N.	DIRECTOR
Elizabeth W. Pack, R. N.	Assistant to the Director

TWENTY-FOURTH BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

CALIFORNIA

FOR THE

Fiscal Years from July 1, 1914, to June 30, 1916



CALIFORNIA
STATE PRINTING OFFICE
1916

LETTER OF TRANSMITTAL.

OFFICE OF CALIFORNIA STATE BOARD OF HEALTH,
SACRAMENTO, September 14, 1916.

*To His Excellency, HIRAM W. JOHNSON,
Governor of California.*

DEAR SIR: In accordance with the state law, I herewith transmit to you the twenty-fifth biennial report of the State Board of Health for the sixty-sixth and sixty-seventh fiscal years.

Respectfully submitted,

W. A. SAWYER,
Secretary of State Board of Health.



CONTENTS.

	PAGE
REPORT OF THE SECRETARY	1
The Health of the State—State Health Districts—Population of Proposed State Health Districts—Grouping Towns into Local Health Districts— Typhoid Fever Becoming Rare—The Prevention of Mental Disease— Syphilis—A Psychopathic Hospital—The Prevention of Tuberculosis— Plague Eradication—Hookworm in the Mines—Malaria and Mosquitoes— Sanitary Engineering—Shellfish—Swimming Pools—Sanitary Inspections— Bureau of Communicable Diseases—An Epidemic of Rabies in Coyotes— Drinking Cups and Common Towels—Adulteration of Foods and Drugs— The Consulting Nutrition Expert—The Sanitary Code—Need for More Legal Service—The Registration of Nurses—Cooperation with Other State Depart- ments.	
Members of the California State Board of Health Appointed Between the Years 1870 and 1916.....	18
REPORT OF THE BUREAU OF ADMINISTRATION	20
Report of Operations for the Eradication of Bubonic Plague.....	20
Morbidity Reports, Guy P. Jones, Morbidity Statistician.....	28
Sanitary Inspections, Edward T. Ross, Sanitary Inspector.....	47
Finance, L. B. Mallory, Assistant to the Secretary.....	51
REPORT OF THE BUREAU OF COMMUNICABLE DISEASES	58
Division of Epidemiology.....	58
Laboratory Division :	
I. Preventive Therapeutics—Rabies—Antityphoid (Prophylactic) Vac- cine—Ophthalmia Neonatorum Prophylaxis.....	61
II. Biological Examinations—Anthrax—Diphtheria—Gonococcus—Hook- worm Infection—Malaria—Plague—Rabies—Syphilis—Tuberculosis —Typhoid Fever—Water Pollution—Miscellaneous Examinations— Examination of Specimens for Cities and Towns—Depositories for Mailing Outfits—Branch Laboratories—Research Work and Public Health Instruction	64
Report of the Consulting Parasitologist—Mosquito Investigations—Mos- quito Abatement Districts—The Mosquito-Malaria Survey—Anti-Housefly Propaganda—Laboratory Examinations—Exhibits and Lectures.....	86
REPORT OF THE BUREAU OF SANITARY ENGINEERING	91
Sewage Disposal—Water Supplies—Special Investigations—Water—Sewage —Special—Organization—Classification of Work.	
1. Administration of the State Laws on Water Pollution and Sanitary Water Systems—2. Field Work—3. Approval and Review of Plans— 4. Educational—5. Advice by Correspondence—6. Laboratory.....	95
Appendix "A"—Water Supplies: I. Action on Permits—II. Plans Approved —III. Investigations, Inspections and Reports.....	104
Appendix "B"—Sewage Disposal: I. Action on Permits—II. Plans Ap- proved—III. Inspections, Investigations and Reports.....	114

	PAGE
REPORT OF THE BUREAU OF FOODS AND DRUGS	127
Official Samples—Foods and Food Products for the Fiscal Years Ending June 30, 1915, and June 30, 1916—Food and Food Products, Unofficial Samples—Drugs, Official—State Institution Samples—Foods and Other Supplies for the Fiscal Years Ending June 30, 1915, and June 30, 1916—State Institution Samples—Decomposed Food Condemned and Destroyed—Cold Storage Goods Condemned and Destroyed for the Year Ending June 30, 1916—Materials in Cold Storage—Summary of Analytical Work.	
Report of the Consulting Nutrition Expert.....	161
REPORT OF THE BUREAU OF TUBERCULOSIS	164
Standardization for Tuberculosis Wards or Pavilions of County Hospitals—San Joaquin County Tuberculosis Hospital—Fresno County Tuberculosis Hospital—Los Angeles County Tuberculosis Hospital—Alameda County—Marin County—San Francisco—Shasta County—Orange County—Sacramento County—Santa Clara County—San Diego County—Tuberculosis Dispensaries Established—San Bernardino Tuberculosis Nurse—Tuberculosis Dispensaries and Nurses—Federal Tuberculosis Law Advocated—Length of Residence of the Tuberculous—Educational Work—Reported Cases of Tuberculosis.	
REPORT OF THE BUREAU OF REGISTRATION OF NURSES	177
Introduction—Inspection of Training Schools for Nurses—Accrediting of Training Schools—Students in Training—Requirements for Accredited Training Schools—Development of the Work—Summary.	
REPORT OF THE BUREAU OF VITAL STATISTICS	181

OUTLINE OF VITAL STATISTICS REPORT.

NOTE.—The vital statistics are presented for calendar, instead of fiscal years, to correspond with the annual mortality reports of the Federal Census Bureau.

	PAGE.
I. SUMMARY OF STATISTICS: 1915 and 1914	181-208
Synopsis	181
Birth, death and marriage totals.....	181
Birth and death totals compared.....	182
Birth, death and marriage rates.....	182
Introduction	183
Sources of information.....	183
Indexing of records.....	184
Tabulation of statistics.....	184
Geographic divisions	185
Birth, Death and Marriage Totals.....	186
The State	186
Geographic divisions	189
Counties	190
Cities	192
Birth and Death Totals Compared.....	194
Geographic divisions	194
Cities	195
Birth, Death and Marriage Rates.....	198
Population estimates	198
Geographic divisions	199
Counties	200
Cities	204
II. STATISTICS OF BIRTHS: 1915 and 1914	209-244
Synopsis	209
Births by sex, race and maternal nativity.....	209
Nativity of brides and mothers.....	210
Children in order of birth.....	210
Births by Sex, Race and Maternal Nativity.....	211
Sex	211
Race	212
Sex and race.....	215
Nativity of white mothers.....	215
Sex and nativity of white mothers.....	218
Nativity of Brides and Mothers	220
Nativity of white brides and mothers.....	220
Nativity of single white brides and white mothers.....	223
Children in Order of Birth.....	227
Geographic divisions	227
Cities and rest of state.....	229
III. STATISTICS OF DEATHS: 1915 and 1914	245-363
Synopsis	245
Causes of death.....	245
Geographic divisions	245
Tuberculosis	246
Sex	247
Race	248
Nativity	248

III. STATISTICS OF DEATHS: 1915 and 1914—Continued.	PAGE
Age periods	249
Median age	249
Marital condition of decedents.....	249
Occupations and causes of death.....	250
Causes of Death.....	251
The State	251
Main geographic divisions.....	257
Minor geographic divisions.....	258
Urban and rural districts.....	263
Cities and rest of state	266
Individual counties	268
Individual cities	269
Mortality by months.....	269
Tuberculosis in California.....	270
The State	270
Geographic divisions	271
Cities	273
Length of residence (geographic divisions).....	274
Length of residence (cities).....	277
Southern California	280
Length of residence (all causes).....	281
Month of death.....	282
Deaths by Sex, Race, Nativity and Age Periods.....	284
Sex	284
Sex and cause of death.....	285
Race	287
Race and cause of death.....	288
Nativity of white decedents.....	290
Nativity and cause of death.....	293
Age periods	296
Age and cause of death.....	301
Median Age	306
Geographic divisions	306
Causes of death.....	308
Marital Condition of Decedents.....	309
Geographic divisions	309
Causes of death.....	314
Occupations and Causes of Death.....	317
Occupations	317
Main kinds of occupation.....	318
Causes of death and specific occupations.....	319
IV. STATISTICS OF MARRIAGES: 1915 and 1914.....	364-409
Synopsis	364
Number in order.....	364
Status of grooms and brides.....	364
The widowed and divorced.....	365
Nativity of California brides.....	365
General Marriage Statistics.....	367
Number in order.....	367
Status of grooms.....	371

IV. STATISTICS OF MARRIAGES: 1915 and 1914—Continued.

	PAGE.
Status of brides.....	374
The widowed and divorced.....	378
Nativity of California Brides.....	380
Race and nativity.....	380
Status of white brides.....	383
Status of white brides (by nativity).....	384
Nativity of white brides.....	387
Nativity of white brides (by status).....	389

LIST OF STATISTICAL TABLES.

I. Summary.		
TABLE No.		PAGE.
1.	Main and minor geographic divisions of California, with counties included in each.....	186
2.	Birth, death and marriage totals, with increase and rate per 1,000 population, for California: 1906 to 1915.....	187
3.	Birth, death and marriage totals, with increase in births and deaths, for geographic divisions: 1915 and 1914.....	189
4.	Birth, death and marriage totals, with increase, for counties: 1915 and 1914.....	191
5.	Birth and death totals, with increase, for individual cities and rest of state: 1915 and 1914.....	193
6.	Birth and death totals compared, for geographic divisions: 1915 and 1914.....	195
7.	Birth and death totals compared, for individual cities and rest of state: 1915 and 1914.....	196
8.	Estimated midyear population, births, deaths and marriages, and rates per 1,000 population, for geographic divisions: 1915 and 1914.....	199
9.	Estimated midyear population, births, deaths and marriages, and rates per 1,000 population, for counties: 1915 and 1914.....	201-202
10.	Estimated midyear population, births and deaths, and rates per 1,000 population, for individual cities and rest of state: 1915 and 1914.....	204
11.	Deaths reported for registration districts (cities, towns and rural parts of counties): 1915 and 1914.....	206-208
II. Births.		
1.	Births classified by sex, with per cents, for geographic divisions, and for cities and rest of state: 1915 and 1914.....	211
2.	Births classified by race, with per cent white, for geographic divisions, and for cities and rest of state: 1915 and 1914.....	213
3.	Births classified by sex and race, with per cents by sex, for cities and rest of state: 1915 and 1914.....	215
4.	White mothers classified by nativity, with per cents, for geographic divisions, and for cities and rest of state: 1915 and 1914.....	216
5.	Per cent distribution, by sex, of white children with mothers classified by nativity, for geographic divisions, and for cities and rest of state: 1915 and 1914.....	219
6.	Comparison of per cent distribution, by nativity, of white brides and white mothers, for geographic divisions: 1915 and 1914.....	221
7.	Comparison of per cent distribution, by nativity, of single white brides and white mothers, for geographic divisions: 1915 and 1914.....	224
8.	Births classified by number of children born to mother, with per cents, for geographic divisions: 1915.....	228
9.	Births classified by number of children born to mother, with per cents, for cities and rest of state, and for selected leading cities: 1915.....	230
10.	Births classified by sex and race, and by sex and nativity of mothers, for counties: 1915.....	232-233
11.	Births classified by sex and race, and by sex and nativity of mothers, for counties: 1914.....	234-235
12.	Births classified by sex and race, and by sex and nativity of mothers, for cities: 1915.....	236-237
13.	Births classified by sex and race, and by sex and nativity of mothers, for cities: 1914.....	238-239
14.	Births classified by sex, race and nativity of mothers, with per cents by sex, for geographic divisions: 1915 and 1914.....	240-241

TABLE No.	PAGE.
15. Births classified by sex, race and nativity of mothers, with per cents by sex, for cities and rest of state: 1915 and 1914.....	241
16. Births classified by number of children born to mother, for counties: 1915	242-243
17. Births classified by number of children born to mother, for cities: 1915--	244

III. Deaths.

1. Deaths from certain principal causes, with proportion per 1,000 total deaths and death rate per 100,000 population, for California: 1906 to 1915	252-253
2. Deaths from certain principal causes, with proportion per 1,000 total deaths, for main geographic divisions: 1915 and 1914.....	259
3. Deaths from certain principal causes, with proportion per 1,000 total deaths, for minor geographic divisions: 1915 and 1914.....	260-261
4. Deaths from certain principal causes with proportion per 1,000 total deaths, for metropolitan area and rural counties of Northern and Central California: 1915 and 1914.....	264
5. Deaths from certain principal causes, with proportion per 1,000 total deaths, for freeholders' charter cities and rest of state: 1915 and 1914	267
6. Deaths classified by month of occurrence, with daily averages, for California: 1915 and 1914.....	269
7. Number and per cent of deaths from tuberculosis, for geographic divisions: 1915 and 1914.....	272
8. Number and per cent of deaths from tuberculosis, for individual cities and rest of state: 1915 and 1914.....	273
9. Deaths from tuberculosis classified by length of residence in California, with per cents, for geographic divisions: 1915 and 1914.....	275
10. Deaths from tuberculosis classified by length of residence in California, with per cents, for individual cities and rest of state: 1915 and 1914	278-279
11. Deaths from tuberculosis classified by length of residence (in months), with per cents, for southern California: 1915 and 1914.....	281
12. Number and per cent of deaths from tuberculosis among decedents classified by length of residence in California, for territory north and south of Tehachapi: 1915 and 1914.....	282
13. Number and per cent of deaths occurring each month from tuberculosis, for California: 1915 and 1914.....	283
14. Deaths classified by sex, with per cents, for geographic divisions: 1915 and 1914	284
15. Deaths from certain principal causes classified by sex, with per cents, for California: 1915 and 1914.....	286
16. Deaths classified by race, with per cent white, for geographic divisions: 1915 and 1914	287
17. Deaths from certain principal causes classified by race, with per cent white, for California: 1915 and 1914.....	289
18. White decedents classified by nativity, with per cents, for geographic divisions: 1915 and 1914	291
19. White decedents dying from certain principal causes classified by nativity, with per cents, for California: 1915 and 1914.....	294-295
20. Deaths classified by age periods, for geographic divisions: 1915 and 1914	297
21. Per cent distribution of deaths, by age periods, for geographic divisions: 1915 and 1914	298
22. Deaths from certain principal causes classified by age periods, for California: 1915 and 1914.....	302-303

TABLE
No.

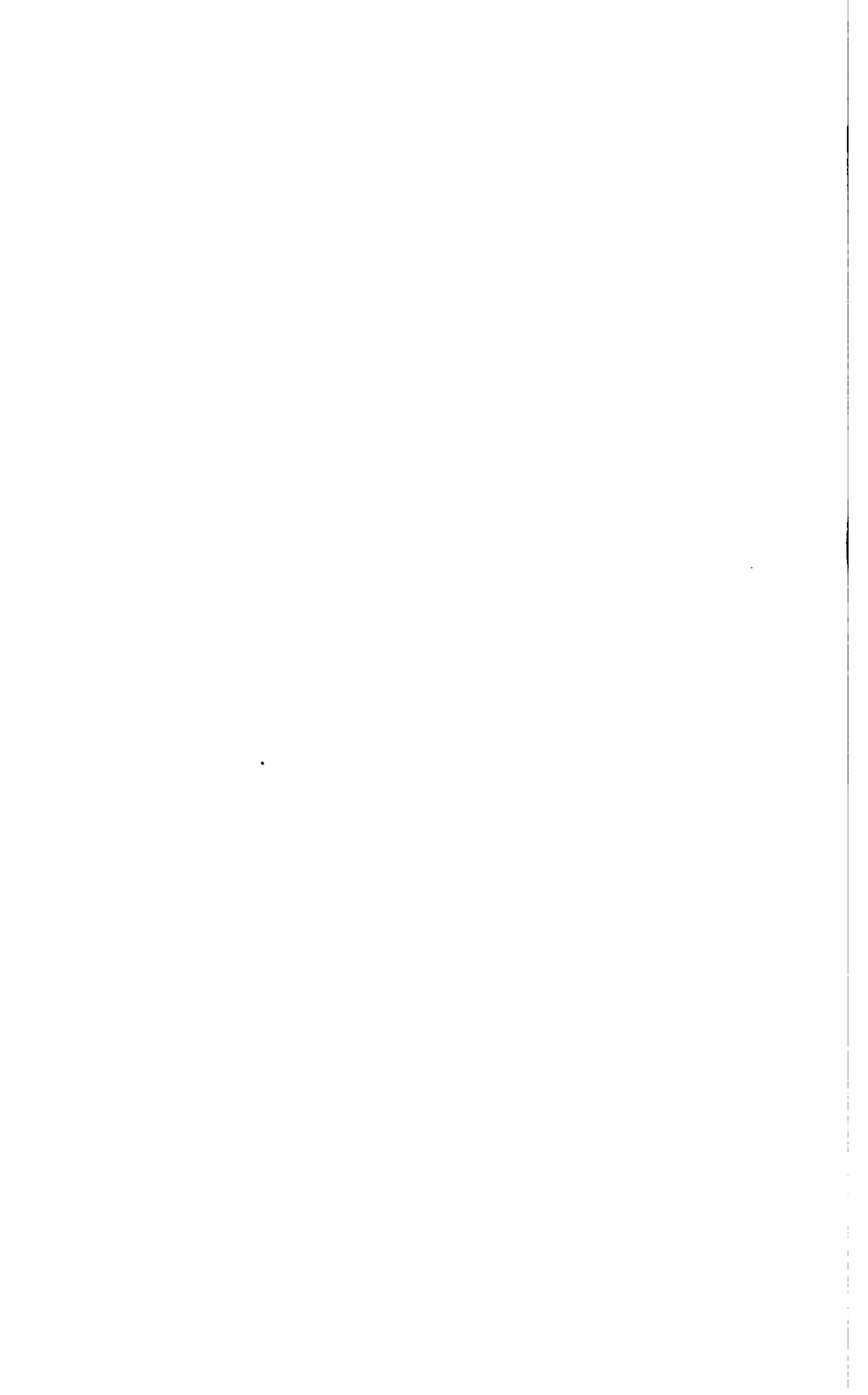
PAGE

23. Per cent distribution, by age periods, of deaths from certain principal causes, for California: 1915 and 1914.....	304
24. Median age at death, for geographic divisions: 1915 and 1914.....	307
25. Median age at death from selected causes, for California: 1915 and 1914.....	308
26. Deaths of males and females 15 years and over classified by marital condition, for geographic divisions: 1915 and 1914.....	310-311
27. Per cent distribution, by marital condition, of male and female decedents 15 years and over, for geographic divisions: 1915 and 1914.....	312
28. Deaths from selected causes of males and females 15 years and over classified by marital condition, for California: 1915 and 1914.....	315
29. Per cent distribution, by marital condition, of deaths from selected causes of males and females 15 years and over, for California: 1915 and 1914.....	316
30. Deaths 15 years and over classified by sex and occupation, with per cents by sex, for California: 1915 and 1914.....	317
31. Deaths of males 15 years and over engaged in gainful occupations, classified by kind of occupation, with per cents, for California: 1915 and 1914.....	318
32. Deaths from each specified disease and class of diseases, classified by sex, race, nativity, and age periods, for California: 1915.....	324-331
33. Deaths from each specified disease and class of diseases, classified by sex, race, nativity, and age periods, for California: 1914.....	332-339
34. Deaths from certain principal causes, for counties arranged geographically: 1915 and 1914.....	340-345
35. Proportion per 1,000 total deaths from certain principal causes, for selected counties (reporting 300 deaths) arranged geographically: 1915 and 1914.....	346-349
36. Deaths from certain principal causes for freeholders' charter cities arranged geographically: 1915 and 1914.....	350-353
37. Proportion per 1,000 total deaths from certain principal causes, for selected freeholders' charter cities (reporting 200 deaths) arranged geographically: 1915 and 1914.....	354-355
38. Deaths of males and females 15 years and over from selected causes, classified by occupation, with per cents, for California: 1915.....	356-359
39. Deaths of males and females 15 years and over from selected causes, classified by occupation, with per cents, for California: 1914.....	360-363

IV. Marriages.

1. Marriages classified by number in order, with per cents, for geographic divisions: 1915 and 1914.....	368
2. Grooms classified by marital condition, with per cents, for geographic divisions: 1915 and 1914.....	372
3. Brides classified by marital condition, with per cents, for geographic divisions: 1915 and 1914.....	375
4. Brides classified by race, nativity, and marital condition, with per cent distribution by marital condition, for California: 1915 and 1914.....	380
5. White brides classified by marital condition, with per cents, for geographic divisions: 1915 and 1914.....	383
6. Per cent distribution, by marital condition, of white brides classified by nativity, for geographic divisions: 1915 and 1914.....	385
7. White brides classified by nativity, with per cents, for geographic divisions: 1915 and 1914.....	388
8. Per cent distribution, by nativity, of white brides classified by marital condition, for geographic divisions: 1915 and 1914.....	390

TABLE No.	PAGE.
9. Marriages classified by number in order and marital condition of parties, with per cents, for counties: 1915-----	394-395
10. Marriages classified by number in order and marital condition of parties, with per cents, for counties: 1914-----	396-397
11. Brides classified by race, nativity, and marital condition, with per cent distribution by marital condition, for geographic divisions: 1915---	398-399
12. Brides classified by race, nativity, and marital condition, with per cent distribution by marital condition, for geographic divisions: 1914---	400-401
13. White brides classified by marital condition and nativity, with per cent distribution by nativity, for geographic divisions: 1915-----	402
14. White brides classified by marital condition and nativity, with per cent distribution by nativity, for geographic divisions: 1914-----	403
15. Brides classified by race and nativity, with per cent distribution of white brides by nativity, for counties: 1915 and 1914-----	404-405
16. Brides classified by race, nativity, and marital condition, for counties: 1915 -----	406-407
17. Brides classified by race, nativity, and marital condition, for counties: 1914 -----	408-409



REPORT OF THE SECRETARY.

The work of the State Board of Health is exceedingly diverse. Its seven bureaus cover fields which range from sanitary engineering to the education of nurses, and from the control of epidemics to the analyses of foods and drugs. Each of these bureaus has submitted a report, published herewith, for the biennial period ending June 30, 1916. The facts and figures presented show the extent and growth of the work and indicate to what degree the board has accomplished its purpose of conserving the health of the people of California.

This report covers a period of two years, from July 1, 1914, to June 30, 1916. Surgeon Donald H. Currie, on leave from the United States Public Health Service, was secretary and executive officer for the first fourteen months of this period. On August 31, 1915, he resigned to return to duty in the public health service. On September 4, 1915, the present secretary took office.

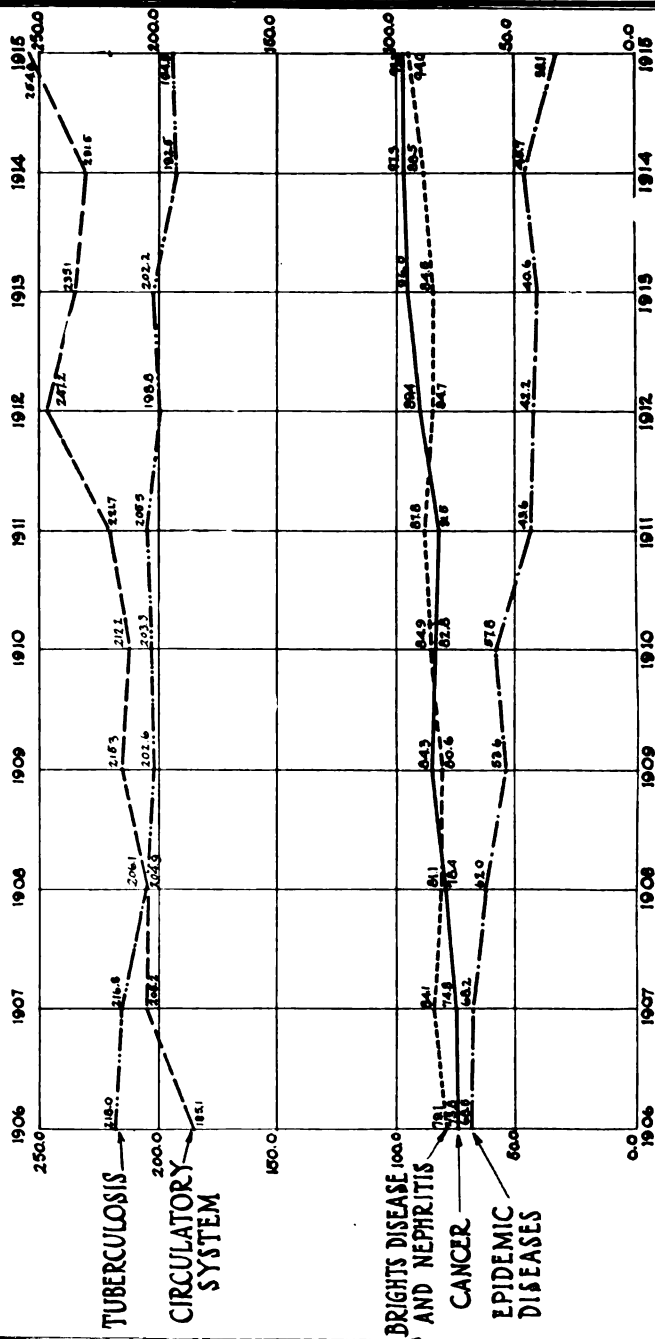
The Health of the State.

As the records of deaths are at the present time more accurate than those of cases of disease, the death rates form the best basis for comparing the health conditions of the state at different periods. The deaths from causes classed as "epidemic diseases" have fallen rapidly in number during the past ten years. It is this group of diseases which has been most persistently and successfully attacked by sanitarians.

The total death rate has also diminished, but not at an equal rate, for the great decrease in the mortality from the epidemic diseases has been in part offset by an actual increase in deaths from the more chronic diseases of middle and advanced age. It follows that the State Board of Health should in future give increasing attention to the causes and prevention of these diseases. While the diseases of this group seem at present less amenable to control measures than the acute infectious diseases, they are doubtless in large part caused or aggravated by preceding preventable infectious diseases, poisonings, or injurious habits. In discovering and controlling the underlying causes of the serious chronic diseases of middle and later life, public health officials can still further lengthen the average span of life, but much greater benefits will be the lessened frequency of incapacity through illness, the increased efficiency which comes with good health, and the more general sense of well-being which is an expression of the proper functioning of the healthy body.

The following chart shows graphically the trend of the death rates for various diseases and groups of diseases. Attention is called to the rapid fall in the number of deaths from epidemic diseases and the definite rise in the number from diseases of the circulatory system. The death rate from tuberculosis shows a very gradual decline, but is still far above the average for the United States.

CALIFORNIA DEATH RATES PER 100,000 POPULATION FOR CERTAIN PRINCIPAL CAUSES, 1906-1915.



State Health Districts.

The state of California is altogether too large to have a highly successful health administration centered entirely in Sacramento and Berkeley. Under the present system the requests of health officers for assistance can be met only when the situation is so urgent as to warrant sending a man from Sacramento or Berkeley. The result is a necessary relative neglect of the distant parts of the state, and a regrettable lack of state cooperation in many important local health matters.

The need for districts has been partially recognized by the establishment in past years of branches of the Hygienic Laboratory in Los Angeles, Fresno, and Sacramento, and the maintenance of an office by an inspector of the Bureau of Foods and Drugs in Los Angeles. But the administration of the state health laws in general is still crippled for lack of an organization which will divide the state into districts and place a state health officer in each.

Such a health officer would be held responsible for the health conditions of his district. He would be constantly in touch with local health officers and would assist and direct them in the enforcement of the state health laws and the regulations of the State Board of Health. At the time of epidemics he would take charge of control measures and decide whether the more highly specialized experts of the board were needed. He would inspect the sanitary conditions of cities and rural districts, order the correction of insanitary conditions, act as local field representative for various bureaus of the board, and bring about more nearly complete disease and birth registration. He would consult with local communities about the need for the enactment and enforcement of health ordinances. He would come quickly to the assistance of health officers when consultations were needed about diagnosis and control measures in outbreaks of communicable disease, such as infantile paralysis, scarlet fever, diphtheria, and smallpox.

For these reasons the State Board of Health regards the proposed amendment to the Political Code, which would establish not less than six health districts and appoint the same number of state district health officers, as the most important health measure to come before the next legislature.

In addition to the state district health officers the same law provides for ten sanitary inspectors to carry on field work for the board. These men are needed to inspect summer resorts, make sanitary surveys of towns, improve rural hygiene, especially where typhoid fever or malaria are prevalent, and to do intensive control work wherever there are serious outbreaks of any communicable disease. These men could be concentrated at any point on short notice and could put control measures into effect quickly, saving many lives and preventing the

demoralization which results when the people see that an epidemic is spreading uncontrolled in their community.

Six health districts are obviously few for a large state, and the area of each district will be very great. In Massachusetts the state is divided into eight districts. New York State has twenty, Maryland has ten, and Illinois has made a start with only five. California can receive great benefit from organization into six districts, and this number can readily be increased in future years, when increases in population makes the districts too unwieldy or the rise in standards of public health administration requires more intensive health service from the state.

In the proposed bill the exact boundaries of the districts are left to the State Board of Health so that they can be altered as experience shows need for a change, but the chart following will show the general scheme of subdivision which led the State Board of Health to decide that the minimum number of districts should be six.

The following table shows the population of each proposed district, inclusive and exclusive of cities of over 25,000 people. The large cities will need relatively little attention from the state district health officers, as most of them have well-organized health departments.

Population of Proposed State Health Districts.

<i>North Coast.</i>		<i>Northern.</i>	
Total population -----	216,416	Total population -----	278,263
Population cities over 25,000 ---	-----	Population cities over 25,000 ---	64,806
<hr/>		<hr/>	
Population outside larger cities.	216,416	Population outside larger cities.	213,457
<i>Middle Coast.</i>		<i>Central.</i>	
Total population -----	1,068,729	Total population -----	310,613
Population cities over 25,000 ---	811,738	Population cities over 25,000 ---	53,216
<hr/>		<hr/>	
Population outside larger cities.	256,991	Population outside larger cities.	257,397
<i>South Coast.</i>		<i>Southern.</i>	
Total population -----	934,075	Total population -----	154,511
Population cities over 25,000 ---	585,889	Population cities over 25,000 ---	53,216
<hr/>		<hr/>	
Population outside larger cities.	348,186	Population outside larger cities.	207,727

Grouping Towns into Local Health Districts.

While the state is too large to make an ideal unit for health administration, the smaller incorporated cities are altogether too small.

Every incorporated town or city is required to maintain a board of health and a health officer. Most of the cities and some of the counties have populations altogether too small to pay for the services of a trained health officer, to say nothing of the support of a milk inspection service or the numerous other important functions of a health department. As a result health protection is almost nil in many places.

TENTATIVE SCHEME FOR PROPOSED STATE HEALTH DISTRICTS



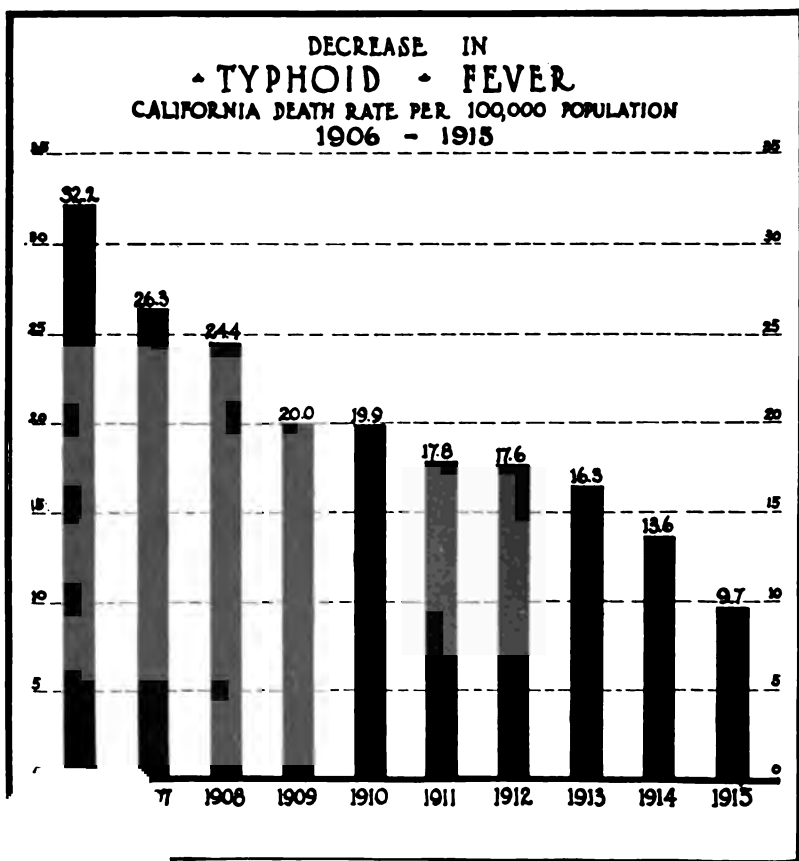
Obviously the remedy lies in grouping the smaller communities into health districts large enough to maintain a health department. The State Board of Health will therefore recommend legislation which would enable small cities, together with the intervening and surrounding territory, to form local health districts for the purpose of maintaining health departments under the supervision of full-time health officers. Such combinations should permit the maintaining of modern health departments where efficient public health protection is now almost absent. Local health districts would prove invaluable for the

enforcement of the new state milk law and the carrying on of meat and market inspection as well as the control of communicable diseases.

Typhoid Fever Becoming Rare.

The biennial period has seen a most remarkable reduction in the amount of typhoid fever in California. In the year 1915 the typhoid fever death rate was 9.7 per 100,000 population. It had fallen 29 per cent since the year before and 70 per cent in the nine previous years. In 1906, when complete statistics of deaths were first collected by the state, the typhoid fever death rate was 32.2 per 100,000 population. If that rate had continued until the end of the year 1915, there would have been 3,193 more deaths from typhoid fever in California than actually occurred. The saving of this number of lives through improved sanitation means that 30,000 cases must have been prevented. The mortality records for the first half of 1916 promise a still further decrease in the typhoid death rate for this year.

The table below gives the typhoid fever death record for the past nine years and shows the recent rapid fall in the prevalence of the disease.



The fall in the typhoid fever death rate is of great significance because it is an index of the success of control measures not only against typhoid fever, but also against a number of other diseases. Many diseases, especially certain types of dysentery and diarrhea, are spread by the same insanitary conditions responsible for the spread of typhoid fever, and a fall in the number of deaths from this disease indicates a greater decrease in the number of deaths from other preventable diseases.

California has at last taken a place among the states with low typhoid fever death rates. The rate will doubtless be further reduced in the ensuing years, for it is the intention of the State Board of Health to continue its campaign with increased vigor. One of the greatest factors in the rapid reduction of typhoid fever, the protection and control of public water supplies, should produce increasing results as the Bureau of Sanitary Engineering extends its work. Moreover, a new and important factor will begin to show its effect when the new state milk law compelling the pasteurization of all milk not from tuberculin tested cows goes into effect. It will result in the pasteurization of nearly all milk supplies and will therefore almost entirely eliminate milk-borne typhoid fever.

California should have a typhoid fever death rate below 5 per 100,000 population as soon as the plans of the State Board of Health for the control of water and milk supplies, for better rural sanitation, and for the intensive investigation and control of all outbreaks have been fully carried out.

The Prevention of Mental Disease.

The prevention of mental disease has been greatly neglected. It has, until recently, been looked upon as outside the field of public health activity. In fact the responsibility for reducing the number of mental defectives has never been very definitely placed.

The state is vitally interested in the prevention of mental disease; first, because the level of efficiency and well-being of the people can thereby be raised, and, second, because the burden of the care of the insane, the feeble-minded, the epileptic, and the incorrigible criminal has properly been placed upon the state.

It has now been definitely shown that a large part of the insanity responsible for crowding our state hospitals is preventable. According to the records of the State Lunacy Commission about 14.5 per cent of the 6,938 patients admitted to state insane hospitals during the biennial period were found to be syphilitic, and 15 per cent of the cases were directly due to alcohol, not counting the large number of inebriates committed to the hospitals.

The three principal causes of insanity—heredity, syphilis, and alcohol—can all be directly controlled and at least partially eliminated as primary or secondary causes of mental disease. The influence of heredity is being somewhat controlled by the prevention of the propagation of people with pronounced inherited mental defects by segregation in institutions, or by surgical operation before release, in accordance with the state asexualization law. The reduction of the consumption of alcohol by making it less accessible, and by educating the public, is receiving attention throughout the nation. Syphilis, on the other hand, is relatively neglected, and is a disease which the State Board of Health and all local health officials should take steps to control.

Syphilis.

Under the state law, syphilis must be reported by physicians and others, although it is not required that the patient's name be forwarded if the physician will send an identifying office number. The reporting has been increasing steadily, but is still far from complete. In the laboratory of the Bureau of Communicable Diseases Wassermann tests for syphilis are made, without charge, for any citizen of the state, if proper specimens of blood are sent by the attending physician. In addition to these measures there should be state inspection and encouragement of public clinics and hospitals in which syphilis is treated, and compulsory isolation, or commitment to hospitals, of patients who are infectious and will not take treatment or avoid exposure of other persons. General laws may possibly now convey these powers to the State Board of Health, but it would be of advantage to have specific legislation on the subject. Such legislation could well be made to include measures relative to gonococcus infections.

A Psychopathic Hospital.

To give to the prevention of mental disease an impetus which will bring the largest of results, immediate provision should be made for scientific study of insanity from every angle, with emphasis on causes and prevention. Moreover, the medical students of to-day, who will be the practitioners and experts of to-morrow, should have better opportunity for studying mental disease and its causes. The state needs a psychopathic hospital which will be essentially a research institution, but also a hospital for patients whose cases may need unusual study. At such a hospital patients could be studied to ascertain whether formal commitment is needed. The teaching and research advantages of the institution should be magnified by close relationship to the medical school of the University of California, with opportunities open to properly qualified students from the other schools.

In order to be of greatest use to the state, this institution should have connected with it an out-patient department and field workers who

would investigate the conditions which are responsible for the dependency of mental defectives. Many of the insane would never need institutional care if unfortunate inheritance had not been supplemented by unfavorable environment. If the first sign of trouble had been detected, the cause removed, and a reasonable degree of helpful supervision given, some of these patients would have rounded out a normal life. Likewise, patients discharged from insane hospitals should be kept track of. If they showed signs of relapse a short voluntary sojourn in the psychopathic hospital might prevent a complete break. For these reasons, the state, through a psychopathic hospital, should have affiliations with approved clinics for mental and nervous disease throughout the state, with juvenile courts, and with all other local institutions which are striving to diminish mental disease by helping mental defectives to avoid the causes which are pushing them on to insanity or criminality.

This plan for prevention will not in any way diminish the immediate need for industrial farms for the large number of users of alcohol and morphine, and for epileptics and feeble-minded persons. They require segregation under wholesome conditions of outdoor work.

The Prevention of Tuberculosis.

California has at last made a definite beginning on a broad plan for preventing tuberculosis. The long delay was doubtless due in large part to the appalling magnitude of the problem. In addition to caring for the tuberculous who contracted the disease within her borders, California finds it necessary to receive and look after a vast army of sufferers from other states. As a result of the annual migration into California of persons sick with tuberculosis, most of them in advanced stages, the tuberculosis death rate in our state has become one of the highest in the United States. In the year 1915 there were 5,551 deaths from tuberculosis in California. The tuberculosis death rate for that year was 194.5 per 100,000 population, a rate one-third higher than the average (145.8) for the entire United States registration area, and about twice as high as the rate in Michigan.

The legislature of 1911 made possible an investigation of the tuberculosis problem by the State Board of Health. A commission appointed by the board rendered a report in 1913 and outlined a comprehensive plan for the eradication of this disease. The first step in carrying out the plan is being accomplished by the Bureau of Tuberculosis provided for by the legislature of 1915. The director of the bureau is inspecting tuberculosis dispensaries and hospitals and encouraging the establishment of new institutions. A number of tuberculosis dispensaries have been established and many tuberculosis nurses have been employed by cities or counties as a result of the activities of the bureau. In addition

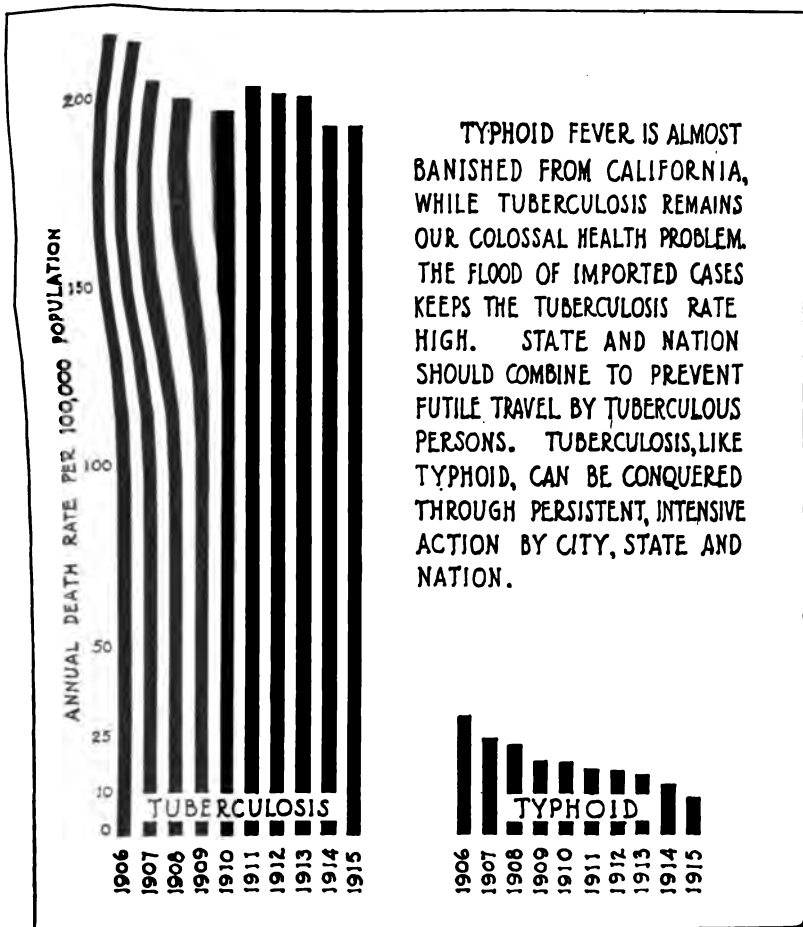
a great deal of educational literature has been distributed, some of it printed in several languages.

The most important work of the bureau has been the administration of the tuberculosis subsidy provided for by the last legislature. The sum of three dollars per week is being paid by the state toward the care of each patient in county tuberculosis hospitals which come up to standards of construction, equipment, diet and care prescribed by the State Board of Health. As a result of the subsidy the accommodations for the care of the tuberculous have been increased and greatly improved in many of the counties. It is safe to say that the additional money spent by counties in tuberculosis control work and hospital care on account of the state subsidy is more than the amount of the subsidy.

In this way one of the important steps in the plan for the control of tuberculosis is being taken. Through state supervision and assistance proper care for the more advanced tuberculous patients is being provided in county after county. It is best that this very large class of patients, many of them bedridden, should be cared for near their homes where they can be visited by friends and relatives. It is highly important that they should not be compelled to remain in lodging houses and homes where they would infect other persons. Ultimately more provision should be made for the care of incipient cases. Early cases can usually be cured or greatly improved and enabled to resume the support of themselves and their families.

In order to continue to develop the system of county hospitals for the tuberculous an increase in the appropriation for the subsidy will be necessary. The amount recommended is small in contrast to the large numbers of patients who are benefited and so cared for that they will not infect others.

An idea of the great size of the tuberculosis problem in California is gained by a comparison in the following diagram between the deaths from this disease and those from another important disease, typhoid fever.



TYPHOID FEVER IS ALMOST BANISHED FROM CALIFORNIA, WHILE TUBERCULOSIS REMAINS OUR COLOSSAL HEALTH PROBLEM. THE FLOOD OF IMPORTED CASES KEEPS THE TUBERCULOSIS RATE HIGH. STATE AND NATION SHOULD COMBINE TO PREVENT FUTILE TRAVEL BY TUBERCULOUS PERSONS. TUBERCULOSIS, LIKE TYPHOID, CAN BE CONQUERED THROUGH PERSISTENT, INTENSIVE ACTION BY CITY, STATE AND NATION.

In the hope of relieving the state of some of the burden unfairly imposed upon it by the migration of the tuberculous from other states, the State Board of Health has given support to the Kent tuberculosis bill. This measure was introduced in the present United States Congress by Representative Kent of California. It was endorsed by joint resolution of the last legislature in the special session.

The bill provides for the control of the interstate migration of tuberculous persons by the United States Public Health Service. Indigent tuberculous persons who are not legal residents of the state in which they are found would be returned by the government to the state from which they came, or else supported in part by the government in such hospitals as come up to standards set by the United States Public Health Service. This bill, if passed, will lighten the tuberculosis burden in California so that it can be properly carried by the state and the counties without unreasonable hardship. The bill has been reported out of

committees in both houses of congress with recommendation that it pass, and it is hoped that it will become law during the short session.

Plague Eradication.

In another part of this report will be found an account of the operations for the eradication of plague. Since 1908 the State Board of Health has cooperated with the United States Public Health Service in the work of squirrel eradication in the infected areas, but in the latter part of the biennial period the available state funds for this purpose have decreased, and the total funds have not been adequate. The disease at the end of the biennial period is limited to ground squirrels and persists in eight counties. At the present rate it will take many years to eradicate plague completely and remove the danger of the sudden appearance of an epidemic among the people. As a matter of economy, as well as protection of the public health, a liberal appropriation should be made for carrying on the work. With the funds now available little more is accomplished than to hold the disease in check and to keep close account of its location. I strongly recommend that the appropriation for this work be large enough to bring about a continuous and rapid shrinking of the area of infection with its ultimate complete disappearance. With an adequate appropriation the State Board of Health would be in a position to accept the eradication of plague among ground squirrels as strictly a state problem, and to take over the work in its entirety by July 1, 1918.

Hookworm in the Mines.

Early in the year 1916 a cooperative investigation of hookworm in the deep gold mines of California was begun by the State Industrial Accident Commission, the United States Bureau of Mines, and the State Board of Health. Laboratory and medical examinations were made by the Bureau of Communicable Diseases of the State Board of Health. A mining engineer was detailed for the work by the State Industrial Accident Commission and the United States Bureau of Mines. This investigation showed a high percentage of infected men in certain mines. A plan was put into operation by which the mine operators and the miners arranged for the treatment of the men found to be infected and the State Board of Health made laboratory examinations to determine the success of the treatment. Certificates, good for a period of six months, are being issued to men found to be free from the disease at the time of the first examination, or after treatment. By requiring their employees to hold these certificates, and by improving sanitary conditions in the mines at the same time, mine operators have it in their power to control the disease.

The investigation and the control measures will be continued by the State Board of Health.

Malaria and Mosquitoes.

Under the Mosquito Abatement Districts Act several communities are organizing for the control of mosquitoes. By working under this act, regions in which malaria is prevalent have it in their power to get rid of the disease and at the same time to lose an unsavory reputation for unhealthfulness. The State Board of Health is helping in the organization of the districts by furnishing the services of experts to make the preliminary survey and to assist in publicity work when the petitions are being circulated.

Before the end of the biennial period a statewide survey of malaria and mosquitoes had been started by the consulting parasitologist and his assistants. The results will be of great value to the board in its work of eradicating malaria.

Sanitary Engineering.

The Bureau of Sanitary Engineering, established by the last legislature, has already produced remarkable results in the improvement of drinking water supplies and the regulation of sewage disposal. Definite reductions in the sickness and deaths due to sewage polluted water supplies have already resulted. Largely through the efforts of this bureau many dangerous public water supplies have been chlorinated. At the end of the biennial period about a million people were receiving water which had been made safe by treatment with chlorine.

The laws under which the bureau works should be amended so that there can be no question as to the power and duty of the bureau to regulate water supplies in regard to turbidity, tastes, hardness, and other undesirable characteristics. At present the laws regarding public water supplies place the emphasis on the possible danger to health and this could be narrowly interpreted to refer only to infectious diseases. The law should forbid supplying to the public water which is not fit to drink, no matter whether the undesirable constituents are silt, mineral salts, algæ, or dangerous bacteria.

Shellfish.

Discharging sewage into the salt waters of California is not without danger. During the biennial period several small outbreaks of typhoid fever occurred among persons who ate uncooked clams from sewage polluted mud flats around San Francisco Bay. There will be danger also from the pollution of oysters unless greater supervision is exercised over the oyster industry. It is recommended that the Bureau of Sanitary Engineering be empowered and instructed to study the pollution of clam and oyster beds and to forbid practices which endanger the public health.

Swimming Pools.

Public swimming pools are becoming more numerous. If the care of the water in the pools and the proper sterilization of bathing suits and towels are neglected, bathing establishments become a positive danger to health. Public swimming pools throughout the state should be permitted only when they meet minimum state requirements and hold a permit from the Bureau of Sanitary Engineering.

Sanitary Inspections.

The work of inspecting summer resorts is being continued and numerous improvements in sewage disposal and water supplies have been brought about. In this way the amount of disease contracted by vacationists is being diminished. The one sanitary inspector of the board is available for this important work only a few months in the year and he can visit only a small part of the resorts. Additional inspectors are needed to enforce proper sanitation in rural districts, health resorts, and small towns, and also to do field work in the control of unusual epidemics.

Bureau of Communicable Diseases.

The State Board of Health depends on the Bureau of Communicable Diseases for the expert services necessary for preventing and suppressing epidemics. As soon as a communicable disease becomes unduly prevalent in some part of the state the epidemiologists of the bureau are called upon to make the field examinations. Often they take entire charge of control measures, much to the relief of a frightened community.

Outside a few large cities, few communities have the services of an expert sanitarian or a public health laboratory, except as these are furnished by the Bureau of Communicable Diseases. When an unusual outbreak of disease occurs, or when the source of a few cases is a mystery, the local health officer turns at once to the State Board of Health. The expert epidemiologists of the bureau seldom encounter a situation which can not be studied out and definitely explained. The explanation usually gives the method of control. In this highly specialized work the epidemiologists are aided by the laboratory of the bureau.

In order to give prompt laboratory services the bureau maintains branch laboratories at Sacramento and Fresno and a division laboratory at Los Angeles.

The bureau makes examinations for various diseases if specimens are submitted by health officers or physicians. Included in the work is the examination of blood specimens for syphilis by the Wassermann test. No charge is made for any examination, and the services are available to all citizens. The presence of a dangerous communicable disease is often first revealed to the authorities by the report on a specimen received at the laboratory.

An Epidemic of Rabies in Coyotes.

Rabies, known also as hydrophobia, has been endemic over a large part of California ever since the state was swept from south to north by the epidemic which began in 1909. As a result occasional small outbreaks in dogs are being reported from widely separated points. A few persons have died from the disease contracted from the bites of rabid animals, and many people who have been bitten have received the preventive Pasteur treatment from the Bureau of Communicable Diseases of the State Board of Health.

Of great interest was the sudden invasion in 1915 of Modoc and Lassen counties by rabies brought in from Oregon by coyotes. The epidemic was so sudden and so dangerous to people and cattle that the State Board of Health established the state rabies quarantine in both counties and instituted an intensive campaign against coyotes and loose dogs. Thousands of these animals were killed and they soon became very scarce. As a result rabies diminished rapidly and disappeared from Lassen County and most of Modoc County. The latter county is peculiarly liable to reintroduction of the disease from adjacent portions of Oregon and Nevada.

In the control work invaluable cooperation was received from the United States Biological Survey, the United States Forest Service, and the United States Public Health Service.

Drinking Cups and Common Towels.

The common drinking cup and the public roller towel should be abolished by statute. They are becoming rare but may occasionally be seen in public places. The law should also compel the sterilization of dishes and drinking utensils in restaurants, soda fountains, and other places where food or drinks are publicly sold or dispensed. Provision should also be made for the proper storage and protection of drinking water supplies on ships, so that the open water cask will be supplanted by a proper container.

Adulteration of Foods and Drugs.

During the biennial period the Bureau of Foods and Drugs has greatly increased its work with only a slight increase in the working force. In the second year of the period, 5,896 samples were analyzed and 491 cases of violations of the foods and drugs act were referred to district attorneys for prosecution. Over a million pounds of decomposed foodstuffs of various kinds were destroyed.

In these ways the bureau is protecting the food and drug supplies of the people of California and preventing fraud on the part of unscrupulous manufacturers and merchants.

The Consulting Nutrition Expert.

The Consulting Nutrition Expert, appointed in accordance with the provisions made by the last legislature, has exerted valuable supervision over diet and the preparation of foods at state institutions, including hospitals and prisons. His services are now being called for by county institutions, and he is making inspections and assisting officials to select adequate but economical diets for the inmates. Of particular value is his influence in preventing excessive curtailment of diet in county institutions for the sake of economy while the present high price of foodstuffs lasts. He has assisted state institutions by his study of the causes of the wasting of food by inmates. Careful attention to balance in the diet and appetizing methods of serving have reduced the amount of scraps returned from the tables.

The Sanitary Code.

Regulations for the prevention of a number of diseases and for the enforcement of several state laws have been prepared, adopted, and published with explanatory notes in a series of circulars. When the series is completed the regulations will be edited and amended and brought together as a sanitary code.

Need for More Legal Service.

The work required of the attorney of the State Board of Health has grown until it is impossible for one man to do it under the present system of nonresident and part-time service. Originally little more was required of the attorney than the filing of an occasional opinion, but the present activities of the board are such that the continuous service of an attorney is an urgent necessity. The newly established Bureau of Sanitary Engineering, in its important work of regulating public water supplies and sewage disposal systems, is confronted by the opposition of powerful corporations. Emergencies involving important legal points arise frequently in the executive office and necessitate prompt legal advice. Moreover, public health law is a specialty and involves an understanding of the fundamental principles of public health. There should, therefore, be closer contact between the attorney and the remainder of the staff of the board so that there can be an increase in efficiency through mutual education.

For these reasons, I recommend that the law providing an attorney for the State Board of Health be amended by the addition of the requirements that he devote his entire time to the service of the board and that he hold his office at the executive office of the board; and that he be appointed by the board under civil service. Without such a change it will be necessary to go to the considerable expense of employing special
at the coming biennial period.

The Registration of Nurses.

The Bureau of Registration of Nurses has succeeded in raising the standards of accredited training schools for nurses and has specified the minimum course of instruction. Moreover, the State Board of Health has ruled that, after September 1, 1918, accredited schools will not be allowed to admit pupils who are not high school graduates. Examinations for certification as registered nurse are held twice a year simultaneously in San Francisco, Sacramento and Los Angeles.

Cooperation with Other State Departments.

The services of the State Board of Health have been required by other state departments more than ever before. The Bureau of Communicable Diseases is assisting in improving sanitary conditions in state institutions and investigating and controlling such communicable diseases as may appear. The Bureau of Sanitary Engineering is constantly being called upon for expert engineering and laboratory service in connection with the water supplies or sewage disposal plants of state hospitals or prisons; and the Bureau of Foods and Drugs is making large numbers of examinations of samples of materials bought by the state. The samples examined at the foods and drugs laboratory for state institutions within the biennial period numbered 1,986, and included a wide range of foods, drugs, textiles, and other materials. In this way the State Board of Control is able to find out whether goods meet the standard set in the specifications.

WILBUR A. SAWYER,
Secretary.

MEMBERS OF THE CALIFORNIA STATE BOARD OF HEALTH APPOINTED BETWEEN THE YEARS 1870 AND 1916.
By L. B. Mallory, Assistant to the Secretary.

Name	Date appointed	Whence appointed	By whom	Expiration of service	Cause of separation
Thos. M. Logan.....	April 15, 1870	Sacramento	Governor Haight	Mar. 31, 1876	Death.
J. F. Montgomery.....	April 15, 1870	Sacramento	Governor Haight	Jan. 16, 1880	Term expired.
Henry Gibbons.....	April 15, 1870	San Francisco	Governor Haight	Jan. 2, 1885	Death.
L. C. Lane.....	April 15, 1870	San Francisco	Governor Haight	Mar. 15, 1876	Term expired.
F. Walton Todd.....	April 15, 1870	Stockton	Governor Haight	Jan. 6, 1880	Term expired.
C. E. Stone.....	April 15, 1870	Marysville	Governor Haight	April 19, 1873	Resigned.
Luke Robinson.....	April 15, 1870	Santa Clara	Governor Haight	Jan. 16, 1880	Term expired.
A. B. Stout.....	April 19, 1873	San Francisco	Governor Booth	Jan. 16, 1880	Term expired.
James Murphy.....	Mar. 15, 1875	San Francisco	Governor Pacheco	Jan. 16, 1876	Term expired.
J. S. Cameron.....	Mar. 31, 1876	Red Bluff	Governor Irwin	Mar. 17, 1880	Term expired.
F. W. Hatch, Sr.....	Mar. 17, 1876	Sacramento	Governor Irwin	Nov. 19, 1884	Death.
W. R. Chimes.....	Jan. 16, 1880	Sacramento	Governor Perkins	Feb. 13, 1883	Resigned.
J. P. Widney.....	Jan. 16, 1880	Los Angeles	Governor Perkins	Jan. 16, 1884	Term expired.
C. C. Mason.....	Jan. 16, 1880	Chico	Governor Perkins	Jan. 16, 1884	Term expired.
J. W. Breyfogle.....	Jan. 16, 1880	San Jose	Governor Perkins	Jan. 16, 1884	Term expired.
M. M. Granlee.....	Mar. 17, 1880	Visalia	Governor Perkins	Dec. 6, 1880	Death.
Chester Rowell.....	Dec. 6, 1880	Fresno	Governor Perkins	Jan. 2, 1885	Resigned.
Henry S. Orme.....	Jan. 16, 1884	Los Angeles	Governor Stoneman	Mar. 27, 1891	Term expired.
Gerrard G. Tyrrill.....	Nov. 19, 1884	Sacramento	Governor Stoneman	Nov. 9, 1888	Term expired.
R. Beverly Cole.....	Jan. 2, 1885	San Francisco	Governor Stoneman	April 17, 1891	Resigned.
James Simpson.....	Jan. 2, 1885	San Francisco	Governor Stoneman	May 27, 1891	Term expired.
J. M. Briceland.....	Jan. 16, 1884	Shasta	Governor Stoneman	Mar. 27, 1891	Term expired.
H. C. Crowder.....	Jan. 16, 1884	Colusa	Governor Stoneman	Jan. 6, 1888	Term expired.
C. A. Ruggles.....	Jan. 6, 1888	Stockton	Governor Waterman	Mar. 6, 1906	Term expired.
J. R. Laine.....	Nov. 9, 1888	Sacramento	Governor Waterman	Mar. 29, 1897	Term expired.
W. G. Cochran.....	Mar. 27, 1891	Los Angeles	Governor Waterman	Feb. 16, 1893	Resigned.
P. C. Remondino.....	Mar. 27, 1891	San Diego	Governor Markham	Mar. 29, 1897	Term expired.
C. W. Nutting.....	Mar. 27, 1891	Pine Mills	Governor Markham	May 29, 1901	Term expired.
Julius Roenasteln.....	April 17, 1891	San Francisco	Governor Markham	Feb. 13, 1893	Resigned.
W. F. Ward.....	Feb. 13, 1893	Sacramento	Governor Markham	Mar. 29, 1897	Term expired.
Winslow Anderson.....	Mar. 16, 1893	San Francisco	Governor Markham	Mar. 16, 1903	Term expired.
J. H. Davison.....	Mar. 16, 1893	Los Angeles	Governor Markham	Mar. 29, 1897	Term expired.
John Morse.....	Mar. 16, 1893	San Francisco	Governor Budd	Sept. 14, 1896	Death.

R. W. Hill.....	Mar. 29, 1897	Los Angeles	Governor Budd	Feb. 5, 1903	Withdrawn.
W. P. Mathews.....	Mar. 29, 1897	Sacramento	Governor Budd	Feb. 5, 1903	Withdrawn.
D. D. Crowley.....	Mar. 29, 1897	Oakland	Governor Budd	Mar. 27, 1901	Term expired.
A. M. Henderson.....	Mar. 29, 1897	Sacramento	Governor Budd	June 23, 1900	Failed to qualify.
Louis Bazet.....	Sept. 14, 1898	San Francisco	Governor Budd	June 8, 1900	Resigned.
Winslow Anderson.....	June 19, 1900	San Francisco	Governor Gage	Mar. 16, 1903	Resigned.
W. H. Hanna.....	June 23, 1900	Sacramento	Governor Gage	Feb. 5, 1903	Withdrawn.
W. B. Coffey.....	May 29, 1901	San Francisco	Governor Gage	Feb. 5, 1903	Withdrawn.
O. L. Gregory.....	May 29, 1901	Yreka	Governor Gage	Feb. 5, 1903	Withdrawn.
Frank G. Fay.....	May 29, 1901	Sacramento	Governor Gage	Feb. 5, 1903	Withdrawn.
Martin Regensburger.....	Mar. 16, 1903	San Francisco	Governor Pardee	Jan. 18, 1915	Term expired.
N. K. Foster.....	Mar. 6, 1903	Oakland	Governor Pardee	June 24, 1909	Resigned.
F. K. Ainsworth.....	May 25, 1903	San Francisco	Governor Pardee	Jan. 18, 1915	Resigned.
W. A. Briggs.....	Mar. 16, 1903	Sacramento	Governor Pardee	Feb. 6, 1915	Resigned.
A. C. Hart.....	Mar. 16, 1903	Sacramento	Governor Pardee	June 26, 1909	Term expired.
Matthew Gardner.....	April 8, 1903	San Francisco	Governor Pardee	1903	Death.
O. Stansbury.....	Mar. 16, 1903	Chico	Governor Pardee	Jan. 18, 1915	Term expired.
W. LeMoine Willis.....	Mar. 16, 1903	Los Angeles	Governor Pardee	-----	In office.
James H. Parkinson.....	May 26, 1909	Sacramento	Governor Gillette	Sept. 2, 1915	Term expired.
Wm. F. Snow.....	June 26, 1909	Stanford University	Governor Gillette	Dec. 1, 1913	Resigned.
Donald H. Currie.....	Dec. 20, 1913	U. S. P. H. S., San Francisco	Governor Johnson	Aug. 31, 1915	Resigned.
Edw. P. Glaser.....	Dec. 30, 1914	San Francisco	Governor Johnson	-----	In office.
Adelaide Brown.....	Jan. 18, 1915	San Francisco	Governor Johnson	-----	In office.
Geo. E. Ebricht.....	Jan. 18, 1915	San Francisco	Governor Johnson	-----	In office.
F. F. Gundrum.....	Jan. 18, 1915	Sacramento	Governor Johnson	-----	In office.
R. A. Peers.....	Sept. 2, 1915	Colfax	Governor Johnson	-----	In office.
W. A. Sawyer.....	Sept. 2, 1915	Berkeley	Governor Johnson	-----	In office.

REPORT OF THE BUREAU OF ADMINISTRATION.

WILBUR A. SAWYER, M.D., Director.

REPORT OF OPERATIONS FOR THE ERADICATION OF BUBONIC PLAGUE.

Bubonic plague in California is at present confined almost exclusively to ground squirrels in the rural parts of the state. From time to time other rodents or human beings become infected from the squirrel. There is, moreover, constant danger that the disease will be transferred from the infected squirrels to the rats of some of our cities. When the rats of a city become infected an epidemic among human beings is probable with serious loss of life and injury to commerce.

The disease is transmitted from rodent to rodent or from rodent to man by the rat flea, which ingests plague bacilli with the blood of the sick animal and later inoculates another animal, or man.

In September, 1907, there was an epidemic of plague in San Francisco and the mayor of that city and the state of California asked the United States Government to assist in eradicating the disease. Since that time the United States Public Health Service and the California State Board of Health, with such local assistance as was available, have carried on an intensive campaign with the object of eradicating plague from the state. The work has been completely successful as far as the eradication of plague in rats in cities is concerned, but the disease is still present among ground squirrels throughout a wide area.

The Public Health Service withdrew from its plague eradication work in San Francisco on June 30, 1916, leaving such precautionary work as was necessary in the hands of the city authorities. No case of rodent plague had been found in the city since October 23, 1908, in spite of extensive trapping and examination of rats.

Plague in ground squirrels, on the other hand, is still widespread. While it has been controlled in certain localities, many foci remain and it will take years to complete the eradication of the disease through squirrel destruction. The United States Public Health Service and the State Board of Health are cooperating in this work. The former has immediate charge of the operations in the field and in the laboratory.

The following table shows in condensed form the experience of California with bubonic plague. It is reprinted from the United States Public Health Reports for October 13, 1916, Vol. 31, page 2868:

TABLE 1.

Places in California	Date of last case of human plague	Date of last case of rat plague	Date of late case of squirrel plague	Total number rodents found infected since May, 1907
Cities.				
San Francisco	Jan. 30, 1908	Oct. 23, 1908		396 rats
Oakland	Aug. 9, 1911	Dec. 1, 1908		126 rats
Berkeley	Aug. 28, 1907			None
Los Angeles	Aug. 11, 1908		Aug. 21, 1908	1 squirrel
Counties.				
Alameda (exclusive of Oakland and Berkeley)	Sept. 24, 1909	Oct. 17, 1909	June 23, 1916	293 squirrels, 1 wood rat
Contra Costa	July 13, 1915		June 28, 1916	1,629 squirrels
Fresno			Oct. 27, 1911	1 squirrel
Merced			May 12, 1916	7 squirrels
Monterey			May 27, 1916	38 squirrels
San Benito	June 4, 1913		July 1, 1916	72 squirrels
San Joaquin	Sept. 18, 1911		Aug. 26, 1911	18 squirrels
Santa Clara	Aug. 31, 1910		June 21, 1916	32 squirrels
San Luis Obispo			Jan. 29, 1910	1 squirrel
Santa Cruz			May 30, 1916	5 squirrels
Stanislaus			June 2, 1911	18 squirrels
San Mateo			June 21, 1916	1 squirrel

On August 20, 1913, the State Board of Health passed the following self-explanatory resolution:

"Whereas, There has been found within the territory comprised in the counties of Contra Costa, Alameda, Santa Clara, Santa Cruz, Monterey, San Benito, Merced, Stanislaus and San Joaquin, of the state of California, a total of one thousand eight hundred and forty-three (1,843) ground squirrels (*Citellus beecheyi*) which have been proven by laboratory investigation to have been infected with a contagious and infectious disease, to wit, bubonic plague; and

"Whereas, An act of the legislature of the state of California, approved June 7, 1913, provides: 'Whenever any land, place, building, structure, wharf, pier, dock, vessel or water craft is infected with rodents, insects or other vermin which are liable to convey or spread contagious or infectious disease from an existing focus declared by the State Board of Health, it shall be the duty of said board to at once notify the person, firm, copartnership, company or corporation, owning said land, place, building, structure, wharf, pier, dock, vessel or water craft, of the existence of said rodents, insects or other vermin, and said notice shall direct said owner to proceed immediately to exterminate and destroy said rodents, insects or other vermin, and to continue in good faith such measures as may be necessary to prevent their return. In the event that said owner fails, refuses or neglects to proceed as above provided, within ten days from date of receipt of said notice, the State Board of Health may at once proceed to exterminate and destroy said rodents, insects or other vermin, and take such measures as may be necessary to prevent their return, and the cost of the above measures shall be repaid to the State Board of Health by the board of supervisors or other governing body of the county, city and county, city or town wherein the work is done at its next meeting after the bill is presented and the appropriation provided in section 1 of this act shall be reimbursed by the amount so paid, and may again be expended in a similar manner'; therefore, be it

Resolved, That the territory comprised within the aforesaid counties is hereby declared to be an existing focus of contagious and infectious disease; and be it further

Resolved, That the secretary of this board be directed to notify the supervisors of the above named counties of the passage of this resolution and of the intention of the State Board of Health to proceed in accordance with the provisions of the act of the state legislature, approved June 7, 1913."

As a plague-infected ground squirrel was found in San Mateo County on June 21, 1916, the State Board of Health added that county to the list of plague foci through the following resolution, passed September 2, 1916:

Resolved, That, inasmuch as a plague-infected ground squirrel has been found in San Mateo County, that San Mateo County be declared an existing focus of plague.

In addition to the ten counties mentioned above, three other counties were invaded at one time or another, but the disease apparently did not gain a firm foothold, and was promptly eradicated. These counties are the following: San Luis Obispo, Fresno, and Los Angeles. Plague has been present in thirteen counties in all. Plague appears to have been completely eradicated from several of these, but plague-infected squirrels were found as late as during the biennial period ending June 30, 1916, in the following eight counties: Alameda, Contra Costa, Merced, Monterey, San Benito, Santa Clara, Santa Cruz and San Mateo.

The experience of the last two years shows that a large increase in the total funds available for plague eradication is necessary if the disease is to be wiped out within the next few years.

REPORT OF SENIOR SURGEON C. C. PIERCE.

The remainder of this report has been prepared for the State Board of Health by Senior Surgeon C. C. Pierce, United States Public Health Service, who is in charge of the field operations against plague carried on jointly by the United States Public Health Service and the State Board of Health.

The work has been continued with the same organization and system as in previous years, as follows: In each of the nine counties in which plague infection has been found a supervising inspector has been stationed. The counties have been divided into districts of approximately 40,000 acres and a field inspector assigned to each. The field inspectors were directed to serve written notices upon the owners of infected lands to destroy squirrels, as provided by law, agreeing upon a date when the work was to be instituted. If upon reinspection it was found that the work had not been commenced, the case was reported to the supervising inspector, who thereupon collected such data as was necessary for the officer in charge. Orders were then issued for the concentration of a sufficient force of state employees upon the land to do the work, upon the completion of which a statement of the expense incurred was submitted to the owner, and he was given opportunity to pay same forthwith if he so desired. If the bill was not paid as presented, same was forwarded to the State Board of Health for collection in the manner provided by the California legislature in an act approved June 7, 1913.

It became necessary during the year ending June 30, 1915, to proceed upon the lands of 42 persons. An idea of the cooperation obtained from individuals in the destruction of ground squirrels may be gleaned from the fact that out of a total of 18,131 inspections and reinspections made during the year in the nine infected counties, but this number had to be proceeded against in a summary manner, as provided by law.

Inspection Operations.

During the year ending June 30, 1915, the first year of the biennial period, operations as outlined above were carried on in the following counties: Alameda, Contra Costa, San Joaquin, Stanislaus, Merced, San Benito, Santa Clara, Santa Cruz, and Monterey.

In addition to the above nine infected counties, work was carried on for part of the year in San Mateo County. The work in this county was confined to the land adjacent to the borders of Santa Clara and Santa Cruz counties, the object of this being to prevent the migration of San Mateo County squirrels over the border, with consequent reinfestation of lands in the two contiguous counties that has been cleared of squirrels, and, to a certain extent, to protect San Mateo County from the incursions of any possibly infected squirrels from the bordering previously infected counties.

Including the work done in San Mateo County, a total of 18,659 inspections and reinspections, over an area of 8,231,556 acres have been made during the year, and a total of 1,672,869 acres were treated with poisoned grain or other squirrel-destructive agents, as a result of the inspections made and the notices served.

Hunting Operations.

At the close of the fiscal year ended June 30, 1914, there was a total of 150,151 acres of known infected lands. During the fiscal year ending June 30, 1915, infected squirrels were found on various ranches, amounting to 21,356 acres of land, where infection was hitherto not known to exist.

The total area of infected land on June 30, 1915, was 171,517 acres. In addition thereto there were 98,320 acres of land which immediately surrounded or adjoined the infected land. This adjoining territory was subjected to the same intensive treatment that was given to the actually infected land. The total area of infected and adjoining territory was, therefore, 269,837 acres at the middle of the biennial period.

April 1 to July 1 is commonly known as the hunting season in squirrel-eradication work, for it is during these months that the new litters of squirrels commence to come above ground to play and feed. These young squirrels are apparently more susceptible to plague than the older ones, and in them the infection is more likely to be acute. Fleas likewise begin to increase at this time of the year. In counties where the infected and adjoining territory is large, hunting is continued into July, and later if necessary, to insure that all such territory is thoroughly shot over. In certain of the counties a few men have been kept hunting throughout the year.

The following table gives the data of hunting operations during the biennial period ending June 30, 1916:

TABLE 2.

	Year 1914-15	Year 1915-16	Total for biennial period
Ranches on which plague-infected squirrels have been found.....	22	69	-----
Ranches hunted over	3,924	5,863	-----
Squirrels shot	29,032	63,913	92,945
Squirrels found dead	189	336	525
Total squirrels shot and found dead.....	29,221	64,249	93,470
Squirrels examined	29,067	63,598	92,665
Squirrels found infected with plague.....	39	138	177

The finding of 138 infected squirrels during the year ending June 30, 1916, and 83 during the last three months of the year, varies from the results of the four previous years during which there was a constant decrease in the number of squirrels found and in the per cent infected with plague.

The following table gives a summary of the hunting operations for the period of intensive hunting—April 1 to June 30—for the years 1912 to 1916, inclusive:

TABLE 3.—Summary of Hunting Operations for the Period April 1 to June 30, 1912-1916.

	1912	1913	1914	1915	1916
Ranches hunted over.....	723	900	1,464	1,902	3,787
Number of squirrels shot.....	19,335	16,186	13,162	15,594	44,751
Hunters engaged, average.....	9	17	21	26	46
Average days each man hunted.....	64.4	49.4	57.2	59.5	51
Squirrels per hunter per day.....	33.3	19.2	10.5	7.6	12
Squirrels shot per ranch.....	26.7	16.3	8.5	8.1	11.8
Infected squirrels shot during period.....	506	283	44	10	83
Per cent of squirrels infected.....	2.61	1.74	.34	.05	.18

The 39 squirrels mentioned in Table 2 as being found during the year 1914-1915, were from the ranches shown in the following table:

TABLE 4.

County and ranch	Infected squirrels	County and ranch	Infected squirrels
Alameda County—		Contra Costa County—Continued.	
Sullivan	2	Withers	3
Fredericks	6	Baralda	1
Contra Costa County—		Bruno	2
Brown	2	Walker	1
Moraga grant	1	Thornton	1
Moraga Land Co.	2	Burgess	1
Brookwood Acres	1	San Benito County—	
Lawrence	1	Watson	1
Slater	1	Paicines	1
Brown	1	Sally	3
Hornsacker & Bailey ..	1	Watson	2
Hornsacker	1	McGrury	1
Silva	2		
Johnson	1	Total	39

The 138 infected squirrels mentioned in the following table as being found during the year 1915-1916, were found as follows:

TABLE 5.

County and ranch	Infected squirrels	Date last squirrel found	County and ranch	Infected squirrels	Date last squirrel found
Alameda County—			Santa Clara Co.—Con't		
People's Water Company	1	July 12, 1915	A. Bassey ranch	1	May 31, 1916
Oscar Meyer ranch	1	May 22, 1916	J. Bodeau ranch	1	June 21, 1916
M. J. Crocker estate	2	June 21, 1916			
Thomas Egan ranch	1	May 29, 1916	Total	7	
J. A. Mulqueeney ranch	1	June 7, 1916	San Mateo County—		
H. C. Peterson ranch	1	June 23, 1916	H. Selby ranch	1	June 21, 1916
Total	7		Santa Cruz—		
Contra Costa County—			Edward White ranch	1	April 28, 1916
People's Water Company	10	June 29, 1916	G. F. Sillman ranch	1	May 30, 1916
Alexander ranch	2	July 31, 1915	Total	2	
Silva ranch	1	July 31, 1915	Monterey County—		
Domingo ranch	4	Aug. 12, 1915	M. Johnson ranch	11	April 13, 1916
J. Lynn ranch	2	Sept. 13, 1915	Raymond ranch	3	Mar. 2, 1916
Mulholland ranch	1	Aug. 17, 1915	O. Herbert ranch	5	April 1, 1916
M. Duarata ranch	1	Aug. 17, 1915	Otto Olson ranch	4	April 12, 1916
Root ranch	1	Aug. 16, 1915	Wiley Bros. ranch	1	Mar. 22, 1916
J. M. Pereira ranch	1	Aug. 23, 1915	S. Dedina ranch	1	April 3, 1916
J. Christen ranch	1	Aug. 30, 1915	Peach Tree ranch	1	April 18, 1916
T. Silva ranch	2	April 20, 1916	J. Girard ranch	1	April 18, 1916
C. Belshaw ranch	1	Sept. 1, 1915	San Lorenzo or Topo rch.	5	May 27, 1916
W. Noakes ranch	1	Sept. 1, 1915	Total	82	
T. E. Chadburne ranch	1	Oct. 23, 1915	San Benito County—		
Vivian ranch	2	Nov. 12, 1915	D. J. Watson ranch	3	April 20, 1916
Lascaille ranch	2	May 30, 1916	L. J. Abrams ranch	4	July 14, 1915
Griffith ranch	2	May 10, 1916	Abrams & Brandt	2	July 26, 1915
H. Kellar ranch	1	April 28, 1916	Frusetta ranch	1	Aug. 14, 1915
J. Noris ranch	1	May 1, 1916	H. Waters ranch	1	April 10, 1916
Southport and Com. Co.	3	June 27, 1916	H. Kruse ranch	2	April 26, 1916
F. Abbott ranch	1	May 16, 1916	P. Freis ranch	1	April 24, 1916
Pernandez estate	9	May 29, 1916	Lee Payne ranch	1	April 27, 1916
Mortimer ranch	1	May 23, 1916	V. B. Oldham ranch	2	May 26, 1916
Donovan ranch	1	May 20, 1916	L. M. Egan ranch	1	May 16, 1916
Stine ranch	1	May 29, 1916	Marcus ranch	1	May 17, 1916
Kofford ranch	1	June 15, 1916	H. & L. Matthews ranch	1	May 24, 1916
Crocker & Dillon estate	1	June 17, 1916	A. Cowden ranch	1	May 27, 1916
Abrams Bros.	1	June 26, 1916	G. Wapple ranch	1	June 2, 1916
J. Harding ranch	2	June 28, 1916	D. D. Sindell ranch	6	June 30, 1916
Total	58		Garcia ranch	1	June 26, 1916
Merced County—			Total	29	
Crocker-Huffman prop'ty	2	May 12, 1916	Grand total for year	138	
Santa Clara County—			Total number of ranches		
Pacheco Pass	1	Mar. 29, 1916	Infected	69	
J. Heinlan ranch	2	May 29, 1916			
Cochran ranch	2	May 24, 1916			

Intensive hunting operations on a large scale and over a wide area were carried out during the hunting season of the year 1916 for the purpose of a final survey before definitely and permanently discontinuing the work in those counties in which infected squirrels could not be found. If infected squirrels had not been found this year, except in Contra Costa and San Benito, in which counties infection was known to exist, it was intended to discontinue all work in the other counties, and concentrate the entire force in the two infected counties, in an attempt to finally eliminate plague infection among ground squirrels. The finding of plague infection in eight counties, however, has

had the opposite effect and during the next few years it will be necessary to continue the work in all of these infected counties, which will result in greatly increasing the funds required, for plague eradication work in California. The finding of a plague-infected squirrel in San Mateo County is of particular significance. This is the first infection to be found in this county, which immediately adjoins San Francisco to the south, on the Peninsula, making this focus a source of great danger to the city itself. Immediate steps were taken to carry out intensive eradication work in the district just south of San Francisco, to prevent the interchange of infection between squirrels and rats.

Hunting in Other Parts of the State.

In addition to the hunting operations carried on in the ten counties that have been mentioned above, six hunters were sent to Modoc and Lassen counties, in the northeastern part of the state, during January, 1916, and remained there until the end of the fiscal year. No plague-infected squirrels were found in these two counties. The United States Public Health Service employees on this duty cooperated with the California State Board of Health, the United States Biological Survey, the Forest Service and others interested, preventing the introduction of rabies from adjoining states and to limit its spread in California. Poisoning and trapping operations were carried out in these counties to destroy coyotes during the winter and rodent survey for plague-infected squirrels was made in the spring.

Hunting was also done in Mendocino, Sonoma, Lake, Kern and Madera counties, California, during June, 1916, as a result of reports from these counties that ground squirrels had been found dead and living ones observed to act strangely, becoming gentle and apparently not possessing their usual activity. No plague infection was found among squirrels in the five counties last named.

Human Cases of Plague.

From 1908 until June 30, 1916, fourteen human cases of bubonic plague have occurred in California, contracted from infected ground squirrels. One of these cases occurred during July, 1915, in the Moraga Valley, Contra Costa County, death resulting. The diagnosis was confirmed by animal inoculations. This particular case may have contracted his infection from rats or fleas, as the patient gave a history of having slept on some straw near the railroad station at Moraga, where rat evidence was found. As the case occurred in the rural districts, most probably the infection was acquired from ground squirrels. Intensive rat and squirrel eradication measures were carried out in this vicinity; no other cases have occurred during the biennial period.

Squirrel Eradication Measures.

Inspection and hunting operations are only preliminary to the real work of the State Board of Health; eradication of plague infection among ground squirrels in California. This is a very important and difficult duty of the board, tremendous in its extent. Many landowners in noninfected parts of the state desire work done to eradicate squirrels on account of the economic benefits to be derived. This, of course, is not a public health measure, and only advice is given in such cases.

To exterminate squirrels in the infected areas is practically impossible, but by intensive work during a long period of time, it is believed that plague infection may be stamped out. The work accomplished during the year ending June 30, 1916, may be summarized as follows:

TABLE 6.—Eradicative Operations.

Number of inspections.....	1,604
Number of reinspections.....	7,786
Number of acres inspected.....	480,197
Number of acres reinspected.....	2,832,972
Number of acres treated with waste balls.....	100,078
Number of acres treated with destructors.....	16,731
Number of acres treated with grain.....	713,600
Number of miles of railroad rights of way inspected and treated.....	126
Number of miles of railroad rights of way reinspected and treated.....	818

TABLE 7.—Financial Summary—Squirrel Eradicative Campaign.

	July 1, 1914 to June 30, 1915	July 1, 1915 to June 30, 1916	Total
Amount expended by U. S. Public Health Service (including salaries of officers).....	\$57,089 00	\$61,058 73	\$118,147 73
Amount expended by State Board of Health.....	43,304 00	33,150 00	76,454 00
Amount expended by counties.....	25,643 00	13,500 00	39,143 00
Estimated amount expended by individuals.....	109,587 00	80,692 00	190,279 00
Totals	\$235,623 00	\$188,400 73	\$424,023 73

Economic Benefits From Ground Squirrel Eradication.

While it is known that great economic benefits to landowners must accrue from the destruction of ground squirrels, owing to the increase in the crops harvested, it was decided to ascertain, if possible, the exact value in dollars and cents of squirrel-eradication measures. To this end a form circular letter has been sent to farmers and others, requesting them to give an estimate of the amount saved. Almost without exception they have returned the filled-out blanks promptly, together with remarks appreciative of the work.

In the Public Health Reports, Volume 29, No. 50, December 11, 1914, there appeared an article by Surgeon J. D. Long, entitled "The Economy of Ground Squirrel Destruction," the data in which were based on the returns received in the early part of the year. Since that time a large number of additional returns have been received, and the data from these, added to that already reported, show the following economic benefits that resulted from crops saved and increased value of land, nursery stock, etc.

TABLE 8.—Economic Benefits of Squirrel Destruction in Nine Counties in California Cultivated Lands.

223 persons saved 2,175 tons of hay, value.....	\$18,992 72
278 persons saved 2,800.4 tons of grain, value.....	54,539 50
56 persons saved 337.5 tons of fruit, value.....	5,603 50
17 persons saved 33,395 pounds of nuts, value.....	1,915 00
38 persons saved 294 tons of vegetables, value.....	4,031 00
Average amount expended per person in squirrel destruction	\$73 32
Average amount saved per person	187 70

Two hundred and eight persons reported that 3,100 more head of stock could be pastured on 180,859 acres of pasture land than could be pastured before squirrels were destroyed, or one additional animal to each 58.3 acres of pasture. This alone, at a fair estimated figure of \$1 per month per head, represents a saving of \$37,200. In addition to this, various other savings were reported, in shape of diminished expense for repairs to ditch and canal banks, the number of young trees saved from injury and death, and the saving of harvested crops stored in granaries, etc.

General Considerations.

The board of supervisors of most of the infected counties have rendered financial assistance and cooperation for part or all of the biennial period. They have appropriated sums ranging from \$200 to \$500 per month, payable out of county funds, to pay for transportation of the inspectors detailed to their counties and for the purchase of supplies to be used on the county roads, etc.; in addition, furnishing the supervising inspector with an office in the courthouse at the county seat.

Reports concerning the successful squirrel-destruction work in the infected counties and its economic benefits to the farmers have been carried into neighboring counties. As a result, numerous requests have been received for advice and assistance from other counties, and from ranchers in various sections of the state. The State Board of Health, of course, could not aid in an active way in the destruction of squirrels from a purely economic standpoint, unless the question of plague infection was also involved. Printed matter and advice, however, has in every instance been afforded, and expert supervision has been furnished to many landowners, who have paid all expenses in carrying out squirrel-eradication measures on their lands. Several counties—San Mateo, Santa Barbara, and others—have set on foot independent squirrel-eradication campaigns, patterned after the methods followed by the service, their object being to comply with the demands of the ranchers and rid the county of ground squirrels for the economic benefits that will accrue. This goes to show that the problem of the ground squirrel pest, formerly believed to be one to be endured like drought or frost, is now generally coming to be regarded as one possible of solution.

MORBIDITY REPORTS.

GUY P. JONES, Morbidity Statistician.

Each succeeding year more cases of communicable disease are reported in California. While systematic reporting is in its infancy, and while there is great deficiency in the reporting of some diseases, there is a general healthy growth shown for the biennial period 1914-1915. The marked improvement in the reporting of tuberculosis, malaria and the venereal diseases is significant, particularly since these are the diseases, reports of which are the most difficult to secure. The year 1916, statistics for which are not included in this report, indicates still better reporting upon the part of physicians and health officers.

In 1913 there were 15,499 cases of communicable disease reported to the State Board of Health, as required by law.

In 1914 there were 31,792 such cases reported, more than twice as many as during the preceding year, and in 1915 there were no less

than 36,952 cases reported. This substantial growth is greater than the proportionate growth of population and can be attributed largely to the increased efficiency of health departments throughout the state, as well as to the growing demand of the general public for full information regarding the presence of communicable disease in the community.

The control of typhoid fever is gaining in strength each year. While it is true that all cases of this disease are not reported, it is certain that physicians are more conscientious in the matter than they have been. It is also true that fewer cases of this disease are reported because fewer cases now occur. The efficiency of control measures is indicated to a certain extent in the fewer cases of typhoid fever reported.

Malaria cases are well reported now, as compared with previous years. There are a great many cases that are not reported and there are a great many cases that never come to the attention of any physician or health officer. The malaria and mosquito survey conducted during the summer of 1916 by Prof. W. B. Herms, consulting parasitologist of the board, has done much to stimulate reporting. The results of this survey will be shown in the next biennial report. The increase in 1915 shows an aroused interest in reporting of malaria, but the increase in 1916 will show a much greater and more abrupt increase, due largely to the state wide survey mentioned above.

During the last part of the year 1915, organized efforts have been undertaken in securing full and complete data relative to geographical location in which various cases of communicable disease have been contracted. This has led not only to the accumulation of a considerable amount of valuable material relative to intercounty migration of infected persons, but it has also led to the discovery of foci of infection in many other states outside of California. In all such cases, the health officers of the states concerned have been notified of the removal of an infected person from that state into California.

The general improvement in reporting is indicated in the following table:

Number of Cases and Deaths From Certain Diseases Reported During 1913, 1914, and 1915.

Diseases	1913		1914		1915	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Diphtheria	1,659	184	2,679	268	3,660	311
Leprosy	11		7	2	12	
Malaria	61	77	331	70	522	49
Measles	1,796	154	8,852	150	13,114	128
Meningitis (epidemic cerebrospinal)	67	49	70	40	46	22
Polioomyelitis (acute infectious)	90	33	56	26	62	19
Rabies	6	6	2	2	3	3
Rocky Mountain spotted fever	2		2		11	
Scarlet fever	1,695	85	2,831	83	2,893	53
Smallpox	800	15	677	1	336	3
Tuberculosis	2,571	5,370	5,685	5,292	6,213	5,551
Typhoid fever	1,484	131	1,805	376	1,150	276
Gonorrhea	117	9	467	10	695	6
Syphilis	32	212	379	223	612	243

REPORT OF THE STATE BOARD OF HEALTH.

GROUP I. COMMUNICABLE DISEASES.

Number of Cases and Deaths During 1914, by Months.

Diseases	January		February		March		April		May		June	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Diphtheria	302	21	158	17	121	18	122	12	174	23	186	11
Leprosy	2				1	1				1	1	
Malaria	2	2	6	4	7	3	24	5	16	5	11	
Measles	109	1	174	3	527	6	1,011	18	1,572	19	800	21
Meningitis (epidemic cerebrospinal)	6	2	9	6	14	7	7	5	4	1	3	1
Polioomyelitis	4	2	3	2	3	3	4	1	1	2	8	1
Rabies												
Rocky Mountain spotted (or tick) fever												
Scarlet fever	238	16	300	10	221	6	276	11	199	7	152	5
Smallpox	130		113		76		130		50	1	20	
Tuberculosis	484	425	407	526	430	537	507	480	424	465	433	469
Typhoid fever	161	23	140	27	106	25	234	36	111	26	127	7

GROUP I. COMMUNICABLE DISEASES.

Number of Cases and Deaths During 1915, by Months.

Diseases	January		February		March		April		May		June	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Diphtheria	345	35	308	45	422	27	251	16	332	26	327	11
Leprosy												
Malaria	12	1	4	3	41	4	9	9	41	8	60	1
Measles	1,825	27	2,394	30	3,007	16	2,443	19	1,569	19	1,470	1
Meningitis (epidemic cerebrospinal)	9	3	6	4	7	5	6	3	3	1	3	1
Polioomyelitis (acute infectious)	6		2	1	2	3	2	3	3	1	6	1
Rabies			2	2								
Rocky Mountain spotted (or tick) fever												
Scarlet fever	435	6	326	9	270	8	167	7	153	2	130	2
Smallpox	73		79		44	2	42	1	17		24	
Tuberculosis	488	541	457	438	708	586	495	491	557	514	629	443
Typhoid fever	68	15	83	27	90	18	67	24	80	16	76	25

GROUP I. COMMUNICABLE DISEASES.
Number of Cases and Deaths During 1914, by Months—Continued.

Diseases	July		August		September		October		November		December		Total	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Diphtheria	118	9	107	15	198	28	345	34	417	82	466	40	2,679	268
Leprosy			2		1								7	2
Malaria	38	8	70	8	58	12	40	7	34	8	25		331	70
Measles	587	21	385	8	710	4	1,085	11	820	14	982	21	8,862	150
Meningitis (epidemic cerebrospinal)	5	2												
Poliomyelitis	12	3	10	3	3	2	5	3	2	1	1	3	56	26
Rabies											2	2	2	2
Rocky Mountain spotted (or tick) fever														
Scarlet fever	140	6	95	3	182	4	336	5	334	7	448		2,831	83
Smallpox	18		44		14		19		11		34		677	1
Tuberculosis	517	413	405	342	510	380	549	393	460	400	559	498	5,665	5,292
Typhoid fever	196	45	211	37	131	35	168	24	114	45	106	28	1,805	376

GROUP I. COMMUNICABLE DISEASES.
Number of Cases and Deaths During 1915, by Months—Continued.

Diseases	July		August		September		October		November		December		Total Cases 1915	Total Deaths 1915
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.		
Diphtheria	170	19	188	13	126	22	294	20	380	39	407	19	3,660	310
Leprosy														
Malaria	29	3	122	6	95	4	49	4	14		46	5	522	49
Measles	126	5	73	3	31	1	30	4	47	1	99	1	13,114	132
Meningitis (epidemic cerebrospinal)	1		3	1	2	3	2		2		2	1	46	22
Poliomyelitis (acute infectious)	1	1	2		12	2	4	3	12	1	10	2	62	19
Rabies	1	1			1								3	3
Rocky Mountain spotted (or tick) fever														
Scarlet fever	91	2	86	4	176	1	308	1	314	4	422	7	2,893	53
Smallpox	15		4		6		4		14		14		336	3
Tuberculosis	386	429	429	392	565	398	567	405	424	423	508	489	6,213	5,551
Typhoid fever	125	17	131	36	146	29	106	29	80	21	80	24	1,150	276

GROUP II. COMMUNICABLE DISEASES.
Number of Cases Reported During 1914, by Months.

Diseases	January	February	March	April	May	June	July	August	September	October	November	December	Total
Anthrax										1			1
Beri-beri												1	1
Chickenpox	293	320	486	514	331	234	76	62	4	257	302	356	3,235
Dysentery					3	3				3	6	2	18
Erysipelas	34	18	29		28	20	27		13	18	17	45	249
German measles	2	11	8		12	5	4	2	2		8	1	50
Hookworm											1		1
Leprosy	2		1			1		2	1				7
Mumps	91	52	118	126	79	40	2	12	68	18	23	43	672
Pellagra							4		2	4	1		11
Plague					1								1
Pneumonia	78	80	79	92	84	78	63	62	40	74	87	153	976
Tetanus	1				1	1	3	2	4	3	1	3	19
Trachoma	2	2			14	8	2		3	5	7	16	59
Whooping-cough	297	297	412	558	428	219	98	57	85	60	67	79	2,708

GROUP II. COMMUNICABLE DISEASES.

Number of Cases Reported During 1915, by Months.

Diseases	January--	February--	March--	April--	May--	June--	July--	August--	September	October--	November--	December--	Total--
Anthrax			1				1	2					4
Beri-beri								1					1
Chickenpox	477	484	603	481	854	199	47	62	77	106	286	302	3,406
Dysentery				8	11	1		4	1				26
Erysipelas	48	88	51	24	80	19	10	22	15	15	21	33	326
German measles		2	4	2	1	3	1	6	6	3	1	4	33
Hookworm													
Leprosy	2	1		1		2		5	1		2		14
Mumps	115	104	128	147	164	98	22	40	26	54	124	152	1,174
Pellagra	1	1	3	1		2		1					9
Plague							1						1
Pneumonia	162	113	175	67	95	84	36	48	60	67	122	286	1,315
Tetanus			1	2	2	1	2	2	1	3	1	1	16
Trachoma	12	8	9	20	8	6	4	5	8	7	12	13	112
Whooping-cough	97	86	137	153	128	95	67	67	93	75	71	75	1,141
Trichinosis		1				2							3

Typhoid Fever.

Four important outbreaks of typhoid fever occurred during the biennial period covered by this report. These were the outbreak in Hanford, the source of which was found in a carrier who prepared part of the food used in a church supper, resulting in an outbreak of 88 cases. This occurred in the spring of 1914. Another outbreak was that in Healdsburg, Sonoma County, in August of 1914, when 81 cases resulted from the use of a polluted water supply. Reports of both of these outbreaks have been published by Dr. W. A. Sawyer in the Monthly Bulletin. While the Hanford outbreak occurred during the end of the fiscal year preceding the period covered by this report, it is included here since it was not included in the twenty-third biennial report.

An outbreak of typhoid occurred at Helm, in Fresno County, in May, 1916, resulting in 28 cases among persons attending a school picnic, the source of infection, as discovered by Dr. James S. Cumming, being to ice cream infected by a typhoid carrier who prepared this food for the picnic.

The most widespread epidemic was that in the West Side oil fields during May, June and July, 1916, the principal investigation of which was made by Dr. Frank L. Kelly, assistant epidemiologist. There were 112 cases, some of which were due to the use of milk from a dairy employing a milker who had an ambulatory case, the rest resulting from secondary infections.

While the proportion of cases reported in the larger cities of the state, San Francisco, Los Angeles, Oakland and Sacramento, is very large, the highest rates in proportion to population are found in the rural counties. The following table indicates in which counties the disease has been most prevalent during the past few years. While this table is based upon mortality, it indicates the counties in which the least work in typhoid control is done, and also shows those counties that are the most active in the control of the disease.

Counties Having Lower Typhoid Rates.

	Average rate per 100,000 popula- tion, 1909-1914	Rate per 100,000 popula- tion, 1915		Average rate per 100,000 popula- tion, 1909-1914	Rate per 100,000 popula- tion, 1915
Alameda	12.7	9.8	Placer	17.4	10.2
Alpine	54.0		Plumas	22.2	
Del Norte			Riverside	28.8	13.8
El Dorado	6.7		Sacramento	40.8	26.5
Fresno	35.3	11.5	San Benito	10.4	
Humboldt	15.5	5.3	San Bernardino	29.1	4.2
Imperial	62.5	17.2	San Diego	14.9	8.9
Inyo	11.9		San Francisco	15.2	9.0
Kern	34.0	25.5	San Joaquin	29.9	18.7
Lake	39.2	20.2	San Luis Obispo	19.8	9.0
Lassen	34.7		San Mateo	8.1	
Los Angeles	13.3	5.6	Santa Clara	11.8	8.3
Madera	8.0		Santa Cruz	12.8	3.5
Marin	10.6	3.3	Sierra	8.0	
Mariposa	16.8		Sonoma	17.2	7.5
Mendocino	15.3		Tehama	32.1	23.8
Merced	16.5	5.5	Trinity	25.3	
Modoc	32.3		Tulare	25.0	6.8
Mono			Tuolumne	48.5	10.0
Napa	25.2		Ventura	14.5	2.9
Nevada	13.4		Yolo	14.9	7.1
Orange	31.3	19.0			

Counties Having Slightly Lower Typhoid Rates.

Amador	23.8	22.0	Solano	10.9	10.2
Contra Costa	23.1	18.0	Shasta	19.4	15.2
Kings	39.0	36.2	Stanislaus	30.3	29.2
Monterey	13.1	11.3	Yuba	21.0	18.5
Santa Barbara	16.6	15.4			

Counties Having Higher Typhoid Rates.

Butte	23.2	36.7	Glenn	20.9	36.4
Calaveras	10.9	21.8	Siskiyou	14.2	15.2
Columbia	64.7	75.7	Sutter	13.1	15.3

This disease is not reported as it should be in several counties of the state. In the detailed tables for the years 1914 and 1915, it will be noted that several counties have reported deaths from typhoid fever, but that case reports were not made. In 1914, these counties were El Dorado, Glenn and Ventura. In 1915, these counties which were delinquent in reporting were Amador, Calaveras, Glenn, Kings and Riverside. It should be mentioned here that during 1916 there has been a marked improvement in this matter in all counties of the state.

No cases or deaths from typhoid fever were reported in the following counties during 1915: Alpine, Del Norte, Mono, Inyo, Sierra and Trinity. This record was also maintained by Alpine, Del Norte and Mono counties during 1914.

Typhoid Fever, 1914—Number of Cases and

County	January		February		March		April		May	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
California.										
Alameda	11	4	16	2	10	3	13	4	4	
Alpine										
Amador						1			16	
Butte			1		1					
Calaveras										
Colusa	1	1	1							
Contra Costa		1	2	1			4	1		1
Del Norte										
El Dorado										
Fresno	1		1	1			7	1		1
Glenn										
Humboldt			1	1			1			
Imperial	3		8	2		1	7			4
Inyo					9					
Kern			1				2	1	2	
Kings				1			88	1	1	
Lake							2			
Lassen			1		1		2			
Los Angeles	22	4	36	3	33	5	32	6	28	3
Madera										
Marin			1							
Mariposa										
Mendocino				1					3	
Merced	3			1			3		1	
Modoc			1							
Mono										
Monterey					2					
Napa	1									
Nevada					1				4	
Orange				1	2		4	1	2	1
Placer									1	
Plumas										
Riverside	1		2	1	3	2	6		5	1
Sacramento	81	3	27	3	7	1	8	3	8	
San Benito								1		
San Bernardino	1	1	1		2		5	4	8	
San Diego	1		3	2	1	1	4	1	2	2
San Francisco	33	3	30	6	25	6	26	8	16	6
San Joaquin		1						2	2	1
San Luis Obispo									1	
San Mateo			1		1		5	1		
Santa Barbara			1							
Santa Clara			1		2	1	6	1	2	3
Santa Cruz			1			1				
Shasta			2		2	1	2			1
Sierra										
Siskiyou		1				2			1	
Solano					3					
Sonoma										
Stanislaus	1									
Sutter										
Tehama	1	1					3		1	
Trinity										
Tulare		2			1		3		2	1
Tuolumne				1			1			
Ventura		1	1						1	1
Yolo										
Yuba										
Totals	161	23	140	27	106	25	234	36	111	21

Deaths Reported by Months, by Counties.

June		July		August		September		October		November		December		Total	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
14	3	11	2	11		18	3	16		10	3	9	3	143	27
		3		3								2		22	3
	1		1	1	1	1	1			1		3		7	4
2			1											2	1
3		3	1	3	1	3	1	1	4	1	1	1	1	19	6
2		8	2			2		3		3				21	9
	3	3	2	5	3	2	1	3		3	1	2	1	27	14
											1		1		2
				2		1		3						5	4
3	3	12	2	6	2	1	1			1	2	4		45	17
					1								1	9	2
3	3			1	1			2	1	1	1			11	7
			1	1	1					1				90	4
		3		1								1		7	
2			1	1										7	1
17	4	29	8	19	3	25	5	42	1	31	6	38	4	354	52
		1				2		3		1			1	7	
		1												2	
		1	1	1	1	1								2	2
	1	2			1						1			5	4
1	1	2						1				1		12	2
				1		1		1		1				5	
4				1				3	1					10	1
		1						1						2	1
3				1		1		3						18	
5		3		10	2	2	1	3	5	3	2	1		35	13
						1		2						4	
				1		2								3	
6		4	1	1		1					1			29	6
11		50	4	24	4	10	2	24	1	7	2	8	1	265	24
						1		1						2	1
5		9	2	4		1	1	14	1	4	1	9	2	63	12
3	1	1	1			3		1	1	1	1			20	10
18	3	35	3	13		24	5	10	2	19	10	16	5	274	57
	1	2	5	1	3		3	8	2	4	4			17	22
				2	1	1		1	1	1	1			6	3
				1	1									8	2
				1		1	2		1					3	3
5	1	2	2	3	1			1	1	2		3	1	27	11
				2										3	1
														6	2
								1						1	
		2				2		1				1		7	3
6	1					1	1	1	1			1		12	3
		2	1	31	2	8	5	5		9	2	3		108	10
1		2	1	1		3	1	1		3	1		1	11	4
										1		1		2	
5		1	1	1		1				1	1	1		14	4
					1	2		2						4	1
				4	1	6	1	3		4				23	5
		1												2	1
			1	1	1									1	2
5	1	1	1	3	1	5		1		1		2	2	20	7
1		1	1	1	3	2		2				1		8	4
127	27	196	45	211	37	181	35	168	24	114	45	106	25	1,805	376

Typhoid Fever, 1915—Number of Cases and

County	January		February		March		April		May	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
California.										
Alameda	5		8		21	5	13	4	13	3
Alpine										
Amador										
Butte	1	2	1		1		1			
Calaveras										
Colusa	3		2	1	3				20	
Contra Costa			1						1	
Del Norte										
El Dorado							1			
Fresno	1	1	2	1	1				1	
Glenn	1									
Humboldt									4	1
Imperial					2		4		2	
Inyo										
Kern	1					1			2	
Kings										
Lake				1					1	
Lassen										
Los Angeles	27	6	28	6	15	3	13	2	11	3
Madera	1								1	
Marin										
Mariposa									1	
Mendocino	1								1	
Merced	1						2	1		
Modoc										
Mono										
Monterey				1						
Napa										
Nevada							2			
Orange					3	1			2	2
Placer	1									
Plumas	1									
Riverside				1			2			
Sacramento	7	1	25	4	14	2	4	2		1
San Benito										
San Bernardino		2	1						1	
San Diego	2		1							
San Francisco	8	2	11	4	19	5	10	3	16	4
San Joaquin	1		1			1	2	3	4	1
San Luis Obispo			1					1	1	
San Mateo	3		2		4				1	
Santa Barbara				1			1			
Santa Clara				3	4			2	1	
Santa Cruz										
Shasta							2	1	2	1
Sierra										
Siskiyou	1								1	
Solano							5	1		
Sonoma				1			2			
Stanislaus	1	1		1				1	1	
Sutter										
Tehama				1			2	1		
Trinity										
Tulare										
Tuolumne	1						1		1	
Ventura								1		
Yolo								1		
Yuba										
Totals	68	15	83	27	90	18	67	24	89	16

Deaths Reported by Months, by Counties.

June		July		August		September		October		November		December		Total	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
13		13		23	9	12	4	10		6	2	8	3	148	80
					1							1			2
					2		5		1	1		1		5	11
							1						1		2
4		5		12	3	3	1	1	1	4	1			57	7
1		3	2	1		1	1		1	4	1	3	1	15	6
														1	
3	1	3		3	3	1		8	2	1	2	3	1	27	9
			1								1		1	1	3
		4	1		2			4				1	1	9	2
														12	3
4		16	2	1	1	1		5		5		5	1	40	5
													2		2
						1								2	1
1						8								9	
17	7	27	1	22	2	26	1	21	4	23	3	16		248	38
				3		1								6	
					1	2				2		1		5	1
1		1												3	
						1								3	
		2		1								2		8	1
		2		1		6								9	
		2				4		1		1	2	1		9	3
1														1	
		1		1										4	
2	2	5	1			1		3	1			2	1	18	8
2		1			1	5			1					9	2
						1								2	
	2								1			2		2	6
2	1	7	2	24	1	16	1	5	5	1	1	5		110	21
						2		1						5	
1		5		1		3			1	2		2		16	3
1		2		4	3	2	1	4	1	5	2	5		26	7
13	5	12	2	19	4	25	5	18	3	17	1	11	3	179	41
1	1	1		4		7	2	4	1			1	2	26	11
				1				1				1	1	5	2
1								1						12	
				2		1	1	3	1	3	2	1		11	5
		2	1	1	1	6		3		2	1	5		24	8
			1	1				1						2	1
				1					1			5		10	3
		4	1			2		2			1	1	1	11	3
							1	1	1					6	3
3		1	1	2		1		1	1	1	1	2		13	4
2		2		1	1	1	1	2	2			4	1	14	8
1								3						4	1
1		1			1	1		1				1		7	3
			1			2	1	1		1			1	4	3
	1											1		4	1
										1				1	1
		1		1				1				1		4	1
1				1		1	2							3	2
76	20	125	17	131	36	146	29	106	29	80	21	89	24	1,150	276

Smallpox.

The number of cases of smallpox reported grows less year by year. Occasionally, the disease in a virulent form is brought into the state, chiefly from Mexico, and some of these cases prove fatal, but the number of fatal cases has been reduced year by year in proportion to the number of cases reported. The year 1916 will probably show an increase in smallpox mortality, due to the increased importation of a virulent form of the disease from Mexico.

Since 1914, there have been no outbreaks of importance. The last widespread outbreak occurred in Mendocino County in the fall of 1914. While a group of eight or ten cases has appeared occasionally in various parts of the state since that time, there have been no outbreaks affecting large groups of persons as has been characteristic of the disease in California during previous years. No doubt, since most California communities are fairly well vaccinated, this factor has prevented outbreaks involving large numbers of persons. Nearly all persons who have smallpox in California give histories of never having been successfully vaccinated. The proportion of those who were last vaccinated more than seven years preceding the attack is exceedingly small, and very few of those having smallpox were vaccinated within seven years preceding the attack. The following tables indicate the prevalence of smallpox in California during 1914 and 1915:

Smallpox—Vaccination Histories of Cases Reported During 1914.

	Number new cases reported during month	Deaths	Number vaccinated within seven years preceding attack	Number last vac- cinated more than seven years preceding attack	Number never suc- cess- fully vaccinated	Vacci- nation history not obtained or un- certain
January	120		3	9	55	53
February	113		2	9	47	55
March	76	2		7	35	34
April	139		8	8	91	22
May	50	1		5	38	7
June	39		1	1	27	10
July	18		1	2	8	7
August	44			2	22	20
September	14		1		10	3
October	19			6	10	3
November	11				9	2
December	31		2	1	25	6
Totals	677	8	18	50	377	233

Smallpox—Vaccination Histories of Cases Reported During 1915.

	Number new cases reported during month	Deaths	Number vaccinated within seven years preceding attack	Number last vac- cinated more than seven years preceding attack	Number never succes- fully vaccinated	Vacci- nation history not obtained or un- certain
January	73			1	59	13
February	79			2	72	5
March	44		1	9	29	5
April	42		2	4	36	
May	17	1			14	3
June	24			3	17	4
July	15		6	1	4	4
August	4				3	1
September	6		1		2	3
October	4				3	1
November	14		1	1	9	3
December	14			4	8	2
Totals	336	1	11	25	256	44

REPORT OF THE STATE BOARD OF HEALTH.

Smallpox, 1914—Number of Cases and

County	January		February		March		April		May	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
California.										
Alameda	1		6		2		1		5	
Alpine										
Amador										
Butte	2		2							
Calaveras					4					
Colusa			1		9		11			
Contra Costa										
Del Norte										
El Dorado										
Fresno	2		11		1		1			
Glenn										
Humboldt			1							
Imperial	2		3		5		3		2	
Inyo										
Kern	2		3		2		1			
Kings	5		6		1		2		1	
Lake	12		7		1					
Lassen							3			
Los Angeles	14		6		10	1	11		6	
Madera					2		2		1	
Marin	1						1			
Mariposa										
Mendocino			15							
Merced										
Modoc							12		5	
Mono										
Monterey			3							
Napa										
Nevada	2		3		4		25			
Orange	1								6	
Placer	2		1		6		3		1	
Plumas										
Riverside							1			
Sacramento	2		2						3	
San Benito										
San Bernardino	2				1				1	
San Diego	3		2		1		2			
San Francisco	12		12		13		6		2	
San Joaquin	2		4		5		2		3	
San Luis Obispo										
San Mateo			3		2		2			
Santa Barbara										
Santa Clara	25		12			1				
Santa Cruz	22		7		6		14		3	
Shasta	1									
Sierra										
Siskiyou										
Solano										
Sonoma	1						1			
Stanislaus			3				23		10	
Sutter	1									
Tehama										
Trinity										
Tulare	3				1		8			
Tuolumne										
Ventura									1	
Yolo										
Yuba										
Totals	120		113		76	2	139	1	50	

Deaths Reported by Months, by Counties.

June		July		August		September		October		November		December		Total	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
5		2		1										23	
														4	
														4	
														21	
														15	
4		1		16		3		1						26	
				4		3		2		1		3		28	
						1								9	
														15	
														20	
														3	
3		3		18		2						1		74	1
1								1						7	
														1	1
														15	
														17	
														3	
2						1								37	
7		2				1		2						19	
								1						14	
								1						1	
								2		3				6	
		2		1										10	
4												9		17	
3		4				2				4		20		32	
1		1						3		2		1		54	
														21	
2														9	
		1		1		1								3	
				1				1						30	1
2														54	
														1	
				1										1	
3														5	
2		1						4		1				49	
														1	
				1										1	
								1						14	
														1	
30		18		44		14		19		11		34		677	3

Smallpox, 1915—Number of Cases and

County	January		February		March		April		May	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
California.										
Alameda							5		4	
Alpine										
Amador										
Butte										
Calaveras										
Colusa										
Contra Costa										
Del Norte										
El Dorado										
Fresno										
Glenn										
Humboldt	3									
Imperial	6		31		20		10		6	
Inyo										
Kern										
Kings										
Lake										
Lassen										
Los Angeles	3		4		7		10		2	
Madera			1		4		1			
Marin										
Mariposa									3	
Mendocino										
Merced			1							
Modoc										
Mono										
Monterey										
Napa										
Nevada										
Orange	14		9		1					
Placer										
Plumas										
Riverside			1		1					
Sacramento					2					
San Benito										
San Bernardino	16		19		9		1		1	
San Diego	29		8				10		1	
San Francisco							2			
San Joaquin	2		2				1			
San Luis Obispo										
San Mateo										
Santa Barbara										
Santa Clara			3							
Santa Cruz										
Shasta										
Sierra										
Siskiyou										
Solano							1			
Sonoma										
Stanislaus										1
Sutter										
Tehama										
Trinity										
Tulare							1			
Tuolumne										
Ventura										
Yolo										
Yuba										
Totals	73		79		44		42		17	1

Poliomyelitis.

Since the outbreak of 1912 in southern California there have been comparatively few cases of this disease reported in California. The prevalence of the disease at that time has no doubt rendered a considerable part of the population immune to the strain of the disease introduced into southern California at that time. The following table shows the number of cases reported by months during the past four years.

Poliomyelitis (Infantile Paralysis)—Number of Cases and Deaths in California, January 1, 1912, to December 31, 1915.

	1912		1913		1914		1915		Total	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
January	5	3	6	4	4	2	6		21	9
February	7	3	2	3	3	2	2	1	14	9
March	3	1	2	3	3	3	2	3	10	10
April	5	3	6	4	4	1	2	3	17	11
May	11	2	4	2	1	2	3	1	19	7
June	48	5	2	1	8	1	6	2	64	9
July	197	36	16	6	12	3	1	1	226	46
August	138	31	10	3	10	3	2		160	37
September	42	14	3		3	2	12	2	60	18
October	45	11	19	1	5	3	4	3	73	15
November	15	4	14	5	2	1	12	1	43	11
December	15	10	8	1	1	3	10	2	34	16
Totals	531	123	92	33	56	26	62	19	741	201

Poliomyelitis, 1914—Number of Cases Reported, by Months, by Counties.

County	January	February	March	April	May	June	July	August	September	October	November	December	Total
California.													
Alameda			1				1	3	1	1			7
Humboldt	2	1											3
Kings							4						4
Los Angeles	1	1	1	1	1		3	1					9
Marin											1		1
Monterey						1							1
Nevada							1						1
Placer			1			1							2
Riverside								1					1
Sacramento						1				1			2
San Francisco				3		4	3	3	2	2			17
San Luis Obispo								1					1
Santa Clara						1							1
Sonoma	1									1			2
Tehama		1											1
Tulare								1			1	1	3
Totals	4	3	3	4	1	8	12	10	3	5	2	1	56

Polliomyelitis, 1915—Number of Cases Reported, by Months, by Counties.

County	January	February	March	April	May	June	July	August	September	October	November	December	Total
California.													
Alameda					1	1			1				3
Contra Costa												1	1
Fresno					2	4		1	1	1	1		10
Humboldt	1												1
Kings			1										1
Los Angeles				1					4	2	9	7	23
Marin	1	1											2
Merced	1												1
Placer										1			1
Riverside	1							1	2				4
Sacramento	2											1	3
San Bernardino							1		2		1		4
San Francisco		1							1		1	1	4
Santa Clara				1									1
Santa Cruz						1							1
Tulare			1						1				2
Totals	6	2	2	2	3	6	1	2	12	4	12	10	62

REPORT OF THE STATE BOARD OF HEALTH.

Cerebrospinal Meningitis, 1914—Number of Cases Reported, by Months, by Counties.

County	January	February	March	April	May	June	July	August	September	October	November	December	Total
California.													
Alameda	1	1	1						1				4
Amador											1		1
Fresno	1												1
Humboldt					2								2
Imperial											1		1
Los Angeles		8	8	6	2	2	1		2	3	2		29
Marin	1												1
Merced							1						1
Monterey		1					1						2
Orange										1			1
San Diego		1							1	1			3
San Francisco	2	2	5	1		1	1			2	2	4	20
San Joaquin												1	1
Shasta		1											1
Tulare	1						1						2
Totals	6	9	14	7	4	3	5		4	7	5	6	70

Cerebrospinal Meningitis, 1915—Number of Cases Reported, by Months, by Counties.

County	January	February	March	April	May	June	July	August	September	October	November	December	Total
California.													
Fresno											1	1	2
Imperial			1										1
Kern							1						1
Los Angeles	3		4	8	2	2		2	1	1		1	19
Merced	1	3											4
Orange	4												4
San Francisco	1	2	2	2						1	1		9
Santa Barbara									1				1
San Joaquin		1			1	1							3
Tulare				1				1					2
Totals	9	6	7	6	3	3	1	3	2	2	2	2	46

SANITARY INSPECTIONS.

EDWARD T. ROSS, Sanitary Inspector.

During the biennial period, 1914–1916, many hundreds of premises were visited for the purpose of investigating sanitary conditions, and two extensive campaigns were waged to prevent the spread of disease.

In the month of April, 1914, a campaign was waged under the direction of the sanitary inspector in Hanford, to prevent the spread of typhoid fever. In order quickly to check the spread of the disease, experienced help was needed. Three experienced inspectors were borrowed from the United States Public Health Service and placed on the state pay roll to assist the inspectors provided by the city authorities. The city was divided into districts with an inspector assigned to each district. During the campaign many hundreds of premises were inspected and over 3,000 nuisances were abated. Two hundred and thirty-two metal garbage cans were provided and over 900 toilets were made fly tight.

Summary of Operations.

Inspections	1,170
Reinspections	3,311
Abatements	3,314
Garbage cans installed	232
Toilets placed in fly-tight condition	1,604
Privies demolished	76
Buildings and basements cleaned	101
Yards cleaned	670
Vacant lots cleaned	37
Streets cleaned	51
Stables cleaned	66
Stagnant water removed from vacant lots	21
Pools of stagnant water oiled, 43,675 sq. ft.	10
Loads of rubbish removed	301
Roller towels removed	49
Public drinking cups removed	69
Concrete floors installed, 3,965 sq. ft.	7
Loads of sand hauled by city team for filling pools	17
Creameries and dairies screened	11
Bonfires burning rubbish in city	183
Buildings screened	31
Garbage receptacles removed from streets and alleyways	91
Miles of irrigation ditches cleaned in the city	2

A campaign against rabies was waged in Modoc and Lassen counties from December 1, 1915, to June 30, 1916. On November 1, 1915, Modoc County was placed under quarantine by the State Board of Health, because of rabies, and on November 29, 1915, Lassen County was also placed under quarantine. During the above period the heads of over 200 animals, which were sent from these counties to the State Hygienic Laboratory for examination proved positive for rabies. The loss of stock in these counties because of rabies amounted to nearly \$100,000. Several hundred quarantine notices, trapping instructions, and quarantine rules were posted throughout the quarantined area and several thousand pieces of literature pertaining to rabies were distributed. A large number of public meetings were held in various towns in the quarantined area for the purpose of explaining the quarantine regulations to the citizens. Stock associations and county officials were interviewed at various times and their cooperation secured. Over 7,000 coyotes, 1,091 dogs, 790 domestic cats, 430 bob cats, 496 polecats and over 5,000 rabbits and squirrels were killed by shooting, trapping and poisoning operations.

Summary of Operations. Modoc and Lassen Counties Rabies Campaign.

Premises inspected for loose and unlicensed dogs	4,907
Dogs found without license	1,912
Dogs found with proper license, second inspection	987
Dog license application blanks issued	1,300
Dogs killed	1,061
Cats killed, domestic	790
Coyotes, killed by hunters or others using state poison	4,587
Coyotes brought in by citizens for bounty	2,575
Bob cats killed	430
Polecats killed	496
Rabbits shot for bait	2,602
Squirrels shot for bait	2,134
Poison baits placed by hunters	66,000
Traps placed by hunters	9,313
Poison issued, ounces	1,408
Poison issued, filled capsules	62,410
Empty capsules for poison issued	71,490
Notices posted, warning	1,257
Notices posted, quarantine	1,917
Notices posted, quarantine modification	1,666
Circular letters, literature, etc., mailed	61,169
Public meetings held	21

The following cases of suspected rabies were reported:

Cattle	441
Horses	52
Sheep	70
Hogs	20
Coyotes	106
Dogs	82
Bob cats	3
Cats domestic	6

The following animals were found dead, cause of death doubtful:

Cattle	839
Horses	232
Sheep	2,048
Hogs	60

Animals' brains shipped to the laboratory in Berkeley for examination:

Cattle	122
Horses	13
Sheep	17
Hogs	7
Dogs	34
Coyotes	81
Bob cats	4
Cats, domestic	1

Reports received show that the following cases proved positive for rabies:

Cattle	76
Horses	6
Sheep	10
Hogs	3
Dogs	22
Coyotes	73
Bob cats	4

Reports received from the laboratory show that the following cases proved negative:

Cattle	46
Horses	7
Sheep	7
Hogs	4
Dogs	12
Coyotes	8
Cats, domestic	1

From May 2 to 10, 1916, an investigation was made of the rabies situation in Fall River Valley section of Shasta County. As far as could be learned only one case of rabies had been found in this section.

On June 12, 1916, an investigation was made of the rabies situation in the vicinity of Loyalton, Sierra County. It was learned that at least four positive cases of rabies as well as a number of suspicious cases had been found from March to the time of the investigation.

Sanitary Surveys.

Sanitary surveys were made of 37 towns. In these surveys hundreds of inspections were made including sewage disposal systems, water supplies, hotels, lodging houses, schools, hospitals, jails, bakeries, restaurants, creameries, candy factories, meat and vegetable markets, groceries, stables, theatres, etc.

Summer Resorts.

One hundred and sixteen summer resorts were inspected. Insanitary conditions were found in practically all of them, due chiefly to improper methods employed in disposing of sewage, garbage, rubbish, etc. The sewage, in many instances is discharged into lakes, rivers or mountain streams. A reinspection was made of 24 of these resorts and all have complied with requirements recommended in reports submitted to the State Board of Health.

Railway Trains.

Fifty-one railway trains were inspected on various roads throughout the state. The coaches in general, except the smoking cars were usually found in good condition. In some instances, however, the toilets were neglected and proper ventilation was lacking. The dining cars throughout were usually found in good condition. In the majority of the smoking cars cuspidors were not provided and the floors and sidewalls were generally dirty, caused by the passengers spitting on the same. In the smoking cars where cuspidors were provided the floors were in clean condition.

Miscellaneous Inspections.

In addition to the above operations, the following premises were inspected:

Lodging houses	30
Canneries and fruit packing houses	51
Slaughterhouses	26
Meat and vegetable markets	47
Bakeries and restaurants	40
Creameries and dairies	27
Laundries	37
Hospitals and sanitariums	9
Public schools	21
Miscellaneous inspections	299

Reinspections.

Lodging houses	14
Canneries and fruit packing houses	20
Slaughterhouses	15
Meat and vegetable markets	20
Bakeries and restaurants	26
Dairies and creameries	11
Public schools	9
Laundries	7

122

It was found during the reinspections that practically all the requirements recommended have been complied with.

Sixty samples of water were collected from various water supplies throughout the state and forwarded to the State Hygienic Laboratory for examination.

One hundred and twenty inspections were made in the State Fair Grounds during the season of 1914.

Three hundred and fifty-nine sanitary reports were submitted during the biennial period.

BUREAU OF ADMINISTRATION—FINANCE.

L. B. MALLORY, Assistant to the Secretary.

The State Board of Health has greatly extended the scope of its work during the past few years, resulting in a natural distribution of the various activities into subdepartments or bureaus, each presided over by a director.

1. The *Bureau of Administration* has general supervision over all departments and directs the policy and financial expenditures of the Board of Health. This bureau directly administers the following appropriations:

Contagious Diseases, chapter 337, 1915;
Printing, chapter 393, 1915;
Stenographic Service, chapter 393, 1915; and
Traveling and Contingent, chapter 393, 1915.

2. The *Bureau of Communicable Diseases*, chapter 223, 1905, located at Berkeley, maintains a laboratory for bacteriological and chemical analyses. It is very largely through this bureau that investigations of cases of contagious diseases and epidemics are made. The antirabic appropriation, chapter 393, 1915, is administered by this bureau.

3. The *Bureau of Foods and Drugs*, located at Berkeley, is charged with the enforcement of the Pure Food and Drug Acts, (foods) chapter 181, (drugs) chapter 186, 1907, and also administers the Cold Storage Act, chapter 360, 1913.

4. The *Bureau of Registration of Nurses*, chapter 319, 1913, has charge of the issuing of certificates to registered nurses, the examinations for same being held semiannually. The funds for the maintenance of this bureau are provided from the registration fee of \$10.00 paid by all who take the examinations or are accredited from other states.

5. The *Bureau of Sanitary Engineering*, chapter 478, 1915, located at Berkeley, has charge of the enforcement of the stream pollution laws. It makes examinations of water and sewage systems, and recommends the granting of permits for the operation of same.

6. The *Bureau of Tuberculosis*, administers the appropriation, provided in chapter 766 of 1915, for subsidizing county hospitals which have tuberculosis wards. The hospital management is required to maintain these wards according to standards established by the bureau and approved by the board.

The following financial statement gives a comprehensive idea of appropriations and expenditures. Where two amounts appear under a heading opposite an appropriation, the upper represents expenditures from July 1, 1914, to June 30, 1915, and the lower amount from July 1, 1915, to June 30, 1916.

FINANCIAL

Biennial Period July 1, 1914, to June 30, 1916—

Name of appropriation	Established	Reverting to general fund June 30, 1915	Chapter, 1915
1. Antirabic Virus	Chapter 391, 1913.....		393
2. Contagious Disease	Chapter 218, 1903.....		337
3. Hygienic Laboratory	Chapter 223, 1905.....	\$106 84	338
4. Nurses' Registration	Chapter 319, 1913.....		22 and 336
5. Cold Storage	Chapter 360, 1913.....	156 27	365
6. Foods and Drugs	Foods, Ch. 181; Drugs, Ch. 181-186, 1907; Ch. 104, 1909	544 13	393
7. Printing	1899		393
8. Office Equipment	Ch. 461, 1913.....		1913
9. Sanitary Engineering	Ch. 373; Ch. 478-619, 1915.....		478
10. Stenographic Service	Chapter 690, 1913.....	64 63	393
11. Travelling and Contingent.....	1870	1,989 60	393
12. Tuberculosis	Ch. 242-591, 1909; ch. 776, 1915	129 92	766
Totals			

STATEMENT.

Sixty-sixth and Sixty-seventh Fiscal Years.

Amount of appropriation	Amount brought forward	Received from other sources	Total	Expenditures		Balances
				1914-15	1915-16	
\$5,000 00	\$2,509 08	\$20 00 3,493 57 5,621 28	\$7,529 08	\$2,516 50	\$2,306 72	\$2,705 86
50,000 00	57,723 34	9,114 85 91 33 359 07	116,838 19	51,945 45	43,141 84	21,750 90
36,350 00	Reverted, June, 1915	450 40 1,501 00 4,535 34	36,800 40	9,993 99	17,470 09	9,336 32
Fees	44,383 38	6,036 84 300 00 1,600 00	50,419 82	6,325 78	5,793 87	38,300 17
Fees	975 37	1,900 00 391 64 1,052 40	2,875 37	1,116 22	1,418 21	340 94
58,000 00	2,296 38	1,444 04	61,740 42	24,584 60	21,858 21	15,297 61
8,000 00	666 39		8,695 39	3,907 12	3,805 54	1,182 73
	168 30		168 30	112 24	56 06	
30,000 00	New	342 55	30,342 45		11,852 34	18,490 11
2,400 00		1,184 94 1,175 41	2,400 00	1,200 00	1,200 00	
35,400 00	224 67	2,360 35	37,985 02	4,077 48	14,105 44	19,202 10
75,000 00	4,546 12	8 00	79,554 12	4,007 36	6,409 80	69,136 87
\$600,150 00	\$113,522 08	\$21,676 53	\$435,348 56	\$110,386 74	\$129,218 21	\$195,743 61

FINANCIAL STATE
Expenditures

Name of appropriation	Salaries	Office expense	General expense
	\$1,380 96		\$180 91
	\$1,380 96		282 59
1. Antirabic Virus	3,135 92	30 00	382 59
	78,439 49		24 00
	\$79,761 92		447 91
2. Contagious Disease	68,182 41	8 10	471 91
	7,083 35	72 79	651 32
	\$75,265 76	162 44	1,043 46
3. Hygienic Laboratory	20,390 95	215 14	1,894 89
	3,016 09		
	\$23,712 10		
4. Nurses' Registration	7,128 79		
5. Cold Storage	730 01		
	\$15,597 74	382 14	579 02
	\$15,794 13	298 90	646 35
6. Foods and Drugs	30,911 87	649 04	1,216 49
7. Printing			
8. Office Equipment			
9. Sanitary Engineering	7,931 77	76 04	439 77
10. Stenographic Service	2,400 00		
	\$2,419 84	59 00	132 73
	\$7,409 93	464 24	305 29
11. Traveling and Contingent	9,889 77	583 24	531 01
	\$3,650 00	39 00	
	\$13,785 80	69 21	
12. Tuberculosis	7,285 80	95 21	182 35
Totals	\$156,061 19	\$1,578 77	\$4,988 67

*Ext. by 1, 1914, to June 30, 1915.
 of 1, 1915, to June 30, 1916.

MENT—Continued.
Itemized.

Postage	Telephone and Telegraph	Traveling	Chemicals	Animals	Printing and Stationery	Bulletin
\$200 00 151 81				\$343 20 307 94		
\$351 81			\$11 75	651 14		
		\$835 11 999 52			\$197 82 192 36	
	\$83 89	1,834 63			390 18	
248 25 292 00		65 80 1,061 44	90 19 38 94	105 09 99 62	301 77 367 52	
540 25	67 57	1,147 24	129 13	204 71	369 29	
620 00 215 00		776 73 955 49			906 67 651 07	
835 00		1,732 22			1,557 74	
20 00 35 00		38 30 405 75			89 83 55 07	
55 00		444 05			144 90	
221 00 160 00		4,487 10 3,670 73	249 40 128 76		244 00 204 53	
361 00		8,157 83	378 16		448 53	
					598 71 865 48	\$3,109 35 2,622 70
					1,464 19	5,732 05
74 00		1,001 88	397 60		298 93	
494 30 1,163 94	303 38 553 88	999 74 2,882 68				
1,658 24	856 76	3,882 42				
87 00 225 00		78 14 1,079 41			321 42 783 04	
312 00		1,157 55			1,104 46	
\$4,207 30	\$1,008 22	\$19,357 82	\$916 78	\$855 85	\$5,778 22	\$5,732 05

FINANCIAL STATE
Expenditures

Name of appropriation	Binding	Equipment	Automobile expense	Squirrel extermination
		\$170 43 23 67		
1. Antirabic Virus		194 10		
			\$1,814 33 1,473 30	*\$10,388 77 †10,023 41
2. Contagious Disease		101 01	3,287 63	20,623 18
		654 26 900 75		
3. Hygienic Laboratory		1,555 01		
4. Nurses' Registration				
5. Cold Storage		757 77		
		2,800 00 562 26		
6. Foods and Drugs		3,362 26		
	\$199 06 117 36			
7. Printing	316 42			
		112 21 56 06		
8. Office Equipment		168 30		
9. Sanitary Engineering	851 41		739 15	
10. Stenographic Service				
11. Traveling and Contingent			239 98	
12. Tuberculosis				
	\$1,167 83	\$6,138 45	\$4,266 76	\$20,623 18

y 1, 1914, to June 30, 1915.

r 1, 1915, to June 30, 1916.

MENT—Continued.

Itemized—Continued.

Advertising	Rent in Los Angeles	Miscellaneous	Notary fees	Ophthalmia neonatorum	Supplies rabies campaign	Totals
		\$13 00				\$4,823 22
		181 00			\$1,923 31	\$95,087 25
		43 69				
		356 30				
		399 99		\$450 00		\$27,164 08
\$19 18		596 60				
144 58		215 65				
63 76		802 25				\$12,119 67
		210 32				
		172 39				
		882 71				\$2,534 43
	\$162 00	171 55				
	162 00	332 52				
	324 00	504 07	\$113 00			\$46,446 16
						\$7,512 66
						\$168 30
		51 70				\$11,862 34
						\$2,400 00
		268 50				
		933 00				
		1,201 50				\$18,782 92
		11 80				\$10,132 10
\$63 76	\$324 00	\$3,548 02	\$113 00	\$450 00	\$1,923 31	\$239,033 13

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES.

For the Biennial Period From July 1, 1914, to June 30, 1916.

By JAMES G. CUMMING, M.D., Dr. P.H., Director.

The work of the Bureau of Communicable Diseases may be considered under two main divisions: epidemiological investigations and laboratory work. With the increase in medical knowledge regarding modes of transmission and methods of prevention of communicable diseases, there has developed the epidemiological field of investigation. When, under the directorship of Dr. Wilbur A. Sawyer, the California State Hygienic Laboratory had been among the pioneers to incorporate this work with the laboratory routine, the original name of the laboratory was changed, in 1915, to the Bureau of Communicable Diseases. Preventive medicine is so recent a development that the cooperating sciences comprising it are yet in the process of coordination. Nevertheless the field investigation of outbursts of disease is the quickest, most complete, means of quelling an epidemic, and the corroborating work of the laboratory is becoming auxiliary. For example, a typhoid epidemic can be brought under immediate control only by a proper field reconnaissance followed by laboratory work. The eradication of hookworm infection among miners depends largely upon field work in conjunction with the laboratory. The control of epidemic rabies depends upon both field and laboratory work, as does the extermination of insect-borne diseases such as malaria and spotted fever; so, although the time is near at hand when the laboratory will be only auxiliary to this new field work, it may be pointed out that neither by itself can fulfill the present-day requirements of preventive medicine. The more active the field work in controlling the preventable diseases, the more rapidly will the results be shown in ultimately diminishing, not only the number of epidemics, but also sporadic cases; for in general it may be considered that all cases whether epidemic or sporadic arise from some previous one; so the aim of epidemiological reconnaissance is to break the chain of communication between the source of infection and the community, adding thereby to the span of human life. The following list of field investigations for this biennial period gives an idea of the scope of work covered by the division of epidemiology of the bureau.

DIVISION OF EPIDEMIOLOGY.

Although some of the special investigations listed in the following report are not strictly limited to the field of epidemiology, they will be reported here for convenience.

July—1914.

1. Investigation, by physiological tests, of the strengths of tinctures of digitalis and strophanthus found in the market (in cooperation with the State Food and Drug Laboratory).
2. Investigation of a typhoid infection contracted in the laboratory.
3. " of reported cases of typhoid fever in persons who had been vaccinated for typhoid fever.
4. an investigation into the bacterial contents of tomato products.

August.

5. Investigation of a water-borne typhoid epidemic at Healdsburg.
6. Beginning of an investigation of a disease reported to be prevalent among the veterans of the Spanish war.
- 1a. Completion of an investigation, by physiological tests, of the strengths of tinctures of digitalis and strophanthus found in the market (in cooperation with the State Food and Drug Laboratory).
7. Investigation of smallpox in Humboldt County.

September.

- 6a. Completion of an investigation of a disease reported to be prevalent among veterans of the Spanish war.
8. Statistical study of the extent and distribution of rabies in California during the biennial period ending June 30, 1914.

October—none.**November.**

9. Investigation of sanitary conditions and suspected scarlet fever in Good Templars' Home, near Vallejo.
10. Investigation of a case suspected of being Verruca Peruana.

December.

11. Investigation of a human case of rabies at Anaheim.
12. Investigation of a human case of rabies at Hanford.
13. Investigation of the methods of transmission of epidemic poliomyelitis.

January—1915.

14. An investigation of the results of the use of typhoid vaccine in the civil population of California.
15. A study of methods of preventing deterioration of sensitized typhoid vaccine while on storage after distribution.
16. An investigation, through correspondence, of the situation with regard to rabies in those parts of Oregon and Nevada adjacent to Modoc County.
17. A field investigation of epidemic cerebrospinal meningitis near Los Banos.

February.

18. A field investigation of the diphtheria epidemic at Petaluma.
19. A field investigation, in cooperation with the representative of the United States Public Health Service, of the rabies situation in Modoc County.
- 14a. Continuation of an investigation of the results of the use of typhoid vaccine in the civil population of California.
- 15a. Continuation of a study of the methods of preventing deterioration of sensitized typhoid vaccine while on storage after distribution.
20. An investigation of a case of human rabies at Santa Cruz.
21. An investigation of a case of human rabies in San Francisco due to a dog bite received in Watsonville.

March.

- 14b. Continuation of an investigation of the results of the use of typhoid vaccine in the civil population of California.

April.

22. Investigation of the later history of a typhoid carrier (H.O.) under quarantine by the California State Board of Health.
- 14c. Continuation of an investigation of the results of the use of typhoid vaccine in the civil population of California.
23. Investigation of the sanitary aspects of the proposed temporary dam across the Russian River at Healdsburg.

May.

24. Investigation of a human case of rabies in Emeryville.
25. A field investigation of watersheds in the bay region.
- 14d. Continuation of an investigation of the results of the use of typhoid vaccine in the civil population of California.
26. Investigation of a milk-borne typhoid fever epidemic at Colusa.
27. Investigation of two cases of temporary local paralyses complicating the anti-rabic treatment.

June.

28. Investigation of a human case of rabies in Los Angeles.
29. Cooperation with the San Francisco Health Department in an investigation of diphtheria.
30. Investigation of a case of paralysis erroneously reported as rabies.

July.

31. Investigation of an erroneous report that there was cholera at San Pablo.
32. Investigation of a case, falsely suspected of being plague, at Sunnyvale.
33. Investigation of a case of streptococcus infection, suspected of being plague, at San Leandro.
34. Laboratory investigation of a human case of plague at Concord.

August.

35. An investigation of typhoid fever on a ranch in Sonoma County near Healdsburg.
36. Examination of two disinfectants for their phenol coefficients.

September.

37. An investigation of reported cases of typhoid fever among employees of the State Highway Commission near Napa.
38. Investigation of a complaint regarding breeding of mosquitoes in a pool situated at Orland.
39. Investigation of malarial conditions at Orland.

October.

40. An investigation of diphtheria in the Fairmont School at Rust.
41. Investigation of malaria in California.

November.

42. An investigation of an outbreak of typhoid fever at Santa Barbara.
43. An investigation of a reported epidemic of diphtheria at Daly City.
44. An investigation of a milk-borne epidemic of typhoid fever at Richmond.
45. Investigation of malaria in California.

December.

46. Investigation of malaria in California.
47. Investigation of rabies in Modoc and Lassen counties.

January—1916.

48. An investigation of the typhoid fever situation at Redding.
49. An investigation of a suspected case of smallpox at Stockton.
50. Investigation of malaria in California.

February.

51. An investigation of hookworm disease in the gold mines at Jackson.
52. An investigation of typhoid fever at Antioch.
53. An investigation of smallpox at the Montezuma mine, Placerville.
54. An investigation of the water supply of Santa Barbara.

March.

55. An investigation of dysentery at Colfax.
56. An investigation of dysentery at Napa.
57. An investigation of smallpox at Placerville.

April.

- 58. An investigation of dysentery at Escalon.
- 59. An investigation of scarlet fever at Los Banos.
- 60. An investigation of scarlet fever at Patterson.
- 50a. Continuation of an investigation of dysentery at Napa.
- 51a. Continuation of an investigation of hookworm in the gold mines of California.

May.

- 61. An investigation of scarlet fever at Auburn.
- 62. An investigation of a typhoid fever epidemic at Helm.
- 63. An investigation of a suspected case of typhus fever at Oxnard.
- 64. An investigation of scarlet fever at Patterson.
- 51b. Continuation of an investigation of hookworm in the gold mines of California.
- 65. An investigation of a case of hydrophobia at Bieber.
- 66. Investigation of Rocky Mountain spotted fever in Modoc and Lassen counties.
- 67. An investigation of diphtheria at Mokelumne Hill.

June.

- 68. An investigation of a typhoid fever epidemic at Helm, Fresno County.
- 69. An investigation of typhoid fever at Wheatville.
- 70. An investigation of a typhoid fever outbreak at Maricopa and Taft.
- 71. An investigation of diarrhea at Protestant Sacramento Orphanage.
- 51c. Continuation of an investigation of hookworm in the gold mines of California.
- 72. An investigation of typhoid fever on the S. S. Wasp.
- 73. An investigation of a reported epidemic of dysentery at Paso Robles.

LABORATORY DIVISION.

The laboratory work of this bureau may be considered under two subdivisions:

First, preventive therapeutics: preparation of antirabic vaccine and treatment of patients; preparation and free distribution of antityphoid vaccine; and free distribution of ophthalmia neonatorum outfits to physicians and midwives.

Second, biological examinations: laboratory diagnosis of submitted specimens; swabs for diphtheria, stools for hookworm, tissue for anthrax, blood smears for malaria, blood serum for syphilis (Wassermann test), blood for typhoid fever (Widal test), blood for spotted and typhus fever, pus for gonococcus infection, brain tissue for rabies, tissue for plague, and sputum for tubercle bacilli. These examinations are made at the request of physicians only, and are made without charge.

I. Preventive Therapeutics.**Rabies.**

The Pasteur antirabic vaccine is prepared at the main laboratory of this bureau. It is administered at the main laboratory in Berkeley, at the branch laboratories in Sacramento, Fresno and Los Angeles, also by official bacteriologists who in different cities are deputized by the State Board of Health, at the Letterman General Hospital, and the Mare Island Navy Yard. The treatment is given free, only on the approval of the local health officer or on the application of the patient, parents or guardian, with the statement that it would be a hardship to pay the usual fee. Inasmuch as all the work of this bureau—field investigations, laboratory examinations, preparation and distribution of vaccines, with the exception of antirabic vaccine—is without charge to all citizens

of California, I would respectfully recommend to the State Board of Health that the antirabic vaccine be placed on the same basis of free treatment to all citizens needing it by this bureau, its branches and deputized bacteriologists.

A total of 202 patients were given the Pasteur preventive treatment during the biennial period. Although there has been an extensive epidemic of rabies among coyotes in Modoc and Lassen counties, resulting in the transmission of the disease to stock, and representing an enormous loss to the ranchmen, yet the number of human cases treated is only about one-third the number treated during the previous period. Patients numbering 151 were bitten by dogs, seven by cats, four by coyotes, one by a Guinea pig, one by a skunk, two by horses, seven were exposed to the saliva of rabid cows, and 16 were exposed to a case of hydrophobia. Among those treated, four died from hydrophobia. Two of these developed the disease during the course of treatment, and one four days, another 15 days, after the completion of the treatment. It may be pointed out that three of these fatal cases were bitten on the head in close proximity to the central nervous system, and had the cauterization of the bites in these cases been more thorough, the chances of successful Pasteur treatment would have been greatly increased. Much depends upon the destruction of the virus planted within the wound.

No untoward effects, as paralysis or abscesses, resulted from the treatment; although the usual mild anaphylactic reaction occurred in most cases, and in one there was vomiting after each treatment. The method of preparation of the vaccine was that adopted by the United States Public Health Service.

Of the 202 patients treated, 168 were bitten by animals proved rabid by laboratory examination. Statistics show that the mortality among untreated cases is from 20 to 30 per cent, and as 168 of our patients were bitten by animals known to be rabid, attention may be called to the fact that at least 35 lives have been saved to the commonwealth during the last biennial period. For purposes of comparison, a summary of the laboratory records of all the patients and the biting animals are included in Table I, where it will be noted that 80 per cent of the patients are treated as the result of positive laboratory findings in the biting animals, and that a relatively small percentage is treated merely on the suspicion that the animal was rabid. There is presented by counties in Table II the total number of Pasteur patients treated.

TABLE 1.—Pasteur Treatments, July 1, 1914, to June 30, 1916.

Place of administration	Number of cases	Treatments completed	Deaths	Diagnosis in biting animal based on—		
				Near bodies or inoculation	Observed symptoms	Suspicious history
Main Laboratory at Berkeley.....	83	81	4	58	17	*8
Northern Branch at Sacramento.....	7	5	—	6	1	0
San Joaquin Valley Branch at Fresno.....	8	8	—	8	0	0
Southern Branch at Los Angeles.....	34	34	—	33	1	0
Laboratory of the Sacramento Board of Health, by deputized bacteriologist.....	10	9	—	9	1	0
Laboratory of the Los Angeles Board of Health, by deputized bacteriologist.....	30	28	—	28	2	0
Laboratory of the San Diego City Board of Health, by deputized bacteriologist.....	7	7	—	7	0	0
Laboratory of the San Francisco Board of Health, by deputized bacteriologist.....	20	18	—	17	1	2
Letterman General Hospital, Presidio, San Francisco, by deputized bacteriologist.....	2	2	—	1	1	0
United States Naval Hospital, Mare Island, by deputized bacteriologist.....	1	1	—	1	0	0
Totals.....	202	193	4	168	24	10

*Including 4 laboratory helpers.

TABLE 2.—Distribution of Treated Cases by Counties.

Alameda.....	36	Shasta.....	3
Los Angeles.....	36	San Luis Obispo.....	2
Lassen.....	15	Solano.....	2
Modoc.....	15	Kings.....	1
San Diego.....	14	Marin.....	1
San Francisco.....	13	Napa.....	1
Santa Cruz.....	11	Placer.....	1
Sacramento.....	9	San Joaquin.....	1
Fresno.....	8	Santa Barbara.....	1
Orange.....	7	Sierra.....	1
Contra Costa.....	6	Yolo.....	1
Stanislaus.....	5	Flagstaff, Ariz.....	1
Imperial.....	4		
Tulare.....	4	Total.....	202
Santa Clara.....	3		

Antityphoid (Prophylactic) Vaccine.

Since July 1, 1914, to June 30, 1916, 12,754 complete treatments of antityphoid vaccine have been prepared and distributed free among 248 physicians.

The vaccine has been furnished in large lots for militia men, for employees in the oil fields and at lumber camps, and for state prisoners, as well as in small quantities to physicians for the immunization of individual patients.

Ophthalmia Neonatorum Prophylaxis.

In complying with the law, chapter 724, Statutes of 1915, entitled "An act to prevent blindness from ophthalmia neonatorum," the California State Board of Health made provision for the gratuitous distribution of a specially prepared outfit containing 1 per cent silver nitrate for the prevention of ophthalmia neonatorum. About ten thousand of these outfits, together with directions for use, have been distributed among city and county health officers, midwives, registered

physicians, hospitals and depositories of this bureau. These outfits may now be obtained without cost from any health officer, from the main laboratory of this bureau or at any one of the two hundred depositories in the various cities and towns throughout the state. Accompanying each outfit is a copy of the law relative to the powers and duties of the State Board of Health and the duties imposed upon physicians or any other person lawfully engaged in the practice of obstetrics or assisting at childbirth. This distribution of information relative to the law has already had effect in stimulating the reporting of blindness. Such reports are essential, not only to make more accurate the vital statistics of this state, but also because any measure for the prevention of blindness tends to decrease the future tax burden of the community; in addition, it is hoped that the free distribution of these outfits with their accompanying information will do much to stimulate the practice of prophylaxis in ophthalmia neonatorum.

United States statistics for 1910 show that there were 1,329 blind persons in California. In at least 20 per cent, or 265 of these, the sight could have been saved by a simple prophylactic application. It is estimated that there will be about eighty thousand births in this state during the next biennial period, and as it is expected that we can reach at least one-third of these, I would respectfully recommend that the sum of \$1,575 be provided for the purchase of thirty-five thousand ophthalmia neonatorum outfits, and that an additional sum of \$350 be provided for the necessary postage.

II. BIOLOGICAL EXAMINATIONS.

Since the establishment of the Hygienic Laboratory, July 1, 1905, there has been a substantial increase in the number of laboratory examinations each successive biennial period. The number of examinations has increased from about 2,000 for the early biennial period to over 23,000 for the last period. This marked increase indicates that physicians are realizing the value, not only to public health, but to private practice of this diagnostic work. In Table IV there will be found statistics for the successive biennial periods. It is important to notice the rate of increase and the number of examinations for each successive period; furthermore, the number of examinations by diseases are all increased with the exception of plague. In Table IV there is presented for the last biennial period the number of examinations and results, according to diseases, for the successive six-month periods.

In Table III it will be noted that there has been an increase in the total number of examinations for each of the successive six-month periods, and this notwithstanding the fact that the making of water analyses has been transferred from this bureau to the Bureau of Sanitary Engineering.

TABLE 3.—Number of Examinations and Results, July 1, 1914, to June 30, 1916.

	Anthrax		Diphtheria		Gonococcus infection		Hookworm	
	Positive--	Total--	Positive--	Total--	Positive--	Total--	Positive--	Total--
July to December, 1914.....	12	42	634	2,011	12	74	-----	5
January to July, 1915.....	4	53	1,222	4,220	91	218	-----	4
July to December, 1915.....	7	49	1,281	4,124	112	243	-----	2
January to June, 1916.....	3	30	997	3,296	101	212	413	1,245
Totals	26	144	4,134	13,651	316	747	413	1,256

TABLE 3.—Number of Examinations and Results, July 1, 1914, to June 30, 1916—Continued.

	Malaria		Plague		Rabies		Syphilis	
	Positive--	Total--	Positive--	Total--	Positive--	Total--	Positive--	Total--
July to December, 1914.....	15	70	-----	1	42	97	39	277
January to July, 1915.....	3	36	-----	-----	138	97	66	673
July to December, 1915.....	7	56	1	3	32	65	68	617
January to June, 1916.....	16	114	-----	-----	*180	844	100	889
Totals	41	276	1	4	292	603	273	2,456

*Including 2 from the state of Oregon.

*Including 2 from the state of Nevada.

TABLE 3.—Number of Examinations and Results, July 1, 1914, to June 30, 1916—Continued.

	Tuberculosis		Typhoid		Water pollution		Miscellaneous		Total	
	Positive--	Total--	Positive--	Total--	Positive--	Total--	Positive--	Total--	Positive--	Total--
July to December, 1914.....	64	300	179	500	140	295	25	58	1,171	3,739
January to July, 1915.....	100	395	77	392	123	223	14	29	1,738	6,310
July to December, 1915.....	112	384	87	591	141	229	9	32	1,857	6,395
January to June, 1916.....	120	427	50	435	-----	-----	11	29	1,991	7,021
Totals	396	1,506	393	1,927	413	747	59	148	6,757	23,465

TABLE 4.—Increase in Number of Examinations, July 1, 1905, to June 30, 1916.

	Anthrax	Diphtheria	Gonorrhea Infection	Hookworm	Malaria	Plague
First year of the laboratory, July 1, 1905, to June 30, 1906		330				1
Biennial period, July 1, 1906, to June 30, 1908		21,231				713
Biennial period, July 1, 1908, to June 30, 1910		42,793			58	
Biennial period, July 1, 1910, to June 30, 1912	27	2,367	46	9	86	
Biennial period, July 1, 1912, to June 30, 1914	85	3,387	353	15	194	
Biennial period, July 1, 1914, to June 30, 1916	144	10,834 ¹	747	1,256	276	4
Totals	256	20,792	1,146	1,280	616	30

TABLE 4.—Increase in Number of Examinations, July 1, 1905, to June 30, 1916—Continued.

	Rabies	Hypbills	Tuberculosis	Typhoid	Water pollution	Miscellaneous	Total
First year of the laboratory, July 1, 1905, to June 30, 1906			54	32	67	96	189
Biennial period, July 1, 1906, to June 30, 1908			255	185	57	504	2,245
Biennial period, July 1, 1908, to June 30, 1910	37		497	330	95	145	3,963
Biennial period, July 1, 1910, to June 30, 1912	243		716	667	136	69	4,273
Biennial period, July 1, 1912, to June 30, 1914	770	142	908	1,242	309	150	7,312
Biennial period, July 1, 1914, to June 30, 1916	608	2,456	1,506	1,927	747	148	20,648
Totals	1,653	2,598	3,936	4,383	1,411	1,112	39,215

¹One year only.²Exclusive of 5,009 diphtheria examinations made in special examinations of school children in Berkeley, Oroville, Hayward and Colfax.³Exclusive of 1,844 examinations of rats from Berkeley. The expense was borne by Berkeley.⁴Exclusive of 6,325 diphtheria examinations made in special examinations at the Southern California State Hospital.⁵Exclusive of 2,815 diphtheria examinations made in special investigations of school children.

Anthrax.

Although anthrax is rarely present in the human being and is not a very prevalent disease among animals in this state, yet the early diagnosis of a single case in a herd is of economic value to the rancher and of health importance to the populace. Of 144 specimens examined, 26 were reported positive for this disease. All positive specimens are reported not only to the sender of the specimen, but also to the State Veterinarian.

Diphtheria.

The increase of 225 per cent in the number of routine diphtheria examinations shows the recognition by the medical profession of the value of this means of identifying carriers and of determining the release from quarantine of those convalescent. The local health officer alone has power to institute or raise quarantine in cases of diphtheria;

so all negative, as well as positive specimens, are reported to him as well as to the attending physician. The percentage of increase does not include 2,815 special examinations among school children.

Gonococcus.

Since it is estimated that gonorrhœa is responsible for about 75 per cent of gynecological cases, and about 20 per cent of all blindness in infants, not to mention the results of the disease in the male, it is patent that physicians should resort more freely to the laboratory diagnosis of this disease. The eugenic movement should convince laymen, as well as physicians, of the advisability of a general medical examination of men before they marry, and this should include as a routine the examination for venereal disease.

Hookworm Infection.

An investigation to determine the prevalence of hookworm infection among California miners was taken up in March, 1916. The State Board of Health, the State Industrial Accident Commission, and the Federal Bureau of Mines allied their forces in the campaign against this infection. As the disease could be considered an industrial accident, and as it can be carried from the mines of one state to those of another, and as it is dangerous, communicable, and preventable, each of the interested organizations is desirous of stamping it out. Mr. Joseph H. White, of the Federal Bureau of Mines, devoted four months to the study of the sanitary conditions in the mines. As a result of his investigation, Mr. White has made recommendations for improvements in toilet and drainage facilities. Of 1,256 specimens examined by this bureau, 413 were found positive for hookworm infection. In fact, in one of the mines 77 per cent of the underground men were infected. On the other hand, in certain mines, the percentage of infection is low, yet the prevalence of the infection among California miners means a great economic loss to laborers and to employers owing to lowered efficiency and increased sickness rate. The infection is preventable by instituting sanitary precautions, and recommendations for sanitary improvements have been made to the superintendents of the various mines. Hookworm infection is easily curable and a large percentage of those found infected have been cured by routine treatment with chenopodium. There are in California about 10,000 miners, all of whom should be examined as soon as possible. Those infected should be treated, then re-examined.

Malaria.

Aside from the laboratory routine examination of suspected malarial specimens this bureau is carrying on a field investigation with the idea of determining the endemic index of this disease. At the present stage of development of this new field work, it would appear from the endemic index that the disease is as prevalent in certain sections of this state as in certain malaria-ridden southern states.

Aside from this work, the purpose of which is to determine the prevalence of the disease in the human being, a mosquito survey was undertaken. Professor W. B. Herms, the consulting parasitologist of this bureau, assisted by Mr. S. B. Freeborn, is making an extensive

survey of the northern half of the state during this summer. The object of this survey is to determine the foci of prevalence of the various species of the *Anopheles* mosquito and to devise means for the eradication of this menace to public health.

It is a fact that many residents, even in the most highly infected malarial districts of California, have their misgivings, not only as to the prevalence of malaria, but also as to the relationship the mosquito bears to the transmissibility of this economically wasteful disease. Particularly is this so in the case of the older residents, and many loyal citizens persist, in spite of evidence to the contrary, that "there is no malaria in our town." In one county in particular it may be pointed out that the workingman denies himself the customary vacation, anticipating enforced idleness during his annual malaria visitation. There is a mining town that has been malarial-ridden for years and during the two months of greatest prevalence there is a serious labor problem, owing to absences resulting in an economic loss both to the operator and the laborer. During the last three years, there has been a movement, led by the more intelligent, to install a sewage system and provide for proper drainage of mosquito-breeding foci. This movement has been opposed by a class who do not realize the ravages of the disease, and the necessity of proper sanitary measures leading to the abatement of mosquito breeding. Towns of this type should have community instruction in all matters regarding malaria. A field man, having a knowledge of the diagnosis, treatment and control of malaria, and provided with a laboratory outfit—microscope, stains, and slides—should spend a sufficient time in such communities demonstrating the various phases of the malaria problem so that there will be no question in the minds of the laity as to the actual prevalence of the disease and the benefits derived from treatment and *mosquito control*.

I therefore respectfully recommend that provision be made for a full time man at a salary of \$1,800 per year and traveling expenses, whose duty will be to carry on intensive work in the eradication of malaria.

Plague.

Owing to the eradivative measures employed for the extermination of squirrels, only one case of plague is reported for the last biennial period, as contrasted with three for the previous one. Case N. G., Moraga, California, age 21, track laborer on railroad, slept on Moraga railway station platform the night of July 9, 1915. He developed symptoms of illness July 13th. On examination, a bubo was found in the right femoral region. On aspiration a small amount of serum was obtained which on being stained revealed the presence of numerous small bacilli with rounded ends and some showing bipolar staining. A culture of the aspirated fluid was inoculated into two guinea pigs. These died in five days. The post-mortem findings in these were those of plague. The organisms isolated from the spleen were both morphologically and culturally typical for *Bacillus pestis*. The patient had all the signs and symptoms of the bubonic form of plague. He died on the eighth day of illness, but unfortunately an autopsy was not obtained.

Rabies.

The total number of examinations of suspected rabid animals has decreased 20 per cent for this period. Moreover, there has been the large decrease of 110 per cent in the number of positive findings among the specimens examined. This shows that health authorities are not relying on a diagnosis from symptoms alone but are resorting to the laboratory report for a definite diagnosis. In Table V is presented by months the records of the examinations of specimens for rabies. In Table VI there is brought together by counties the positive specimens of rabies. The large number of specimens from Modoc and Lassen counties is accounted for by the occurrence of an epidemic, chiefly among coyotes. The transmission of the disease to the human being, cattle, and sheep—resulting in a large financial loss to live stock men—was made the basis of a vigorous campaign against coyotes by the California State Board of Health. Although the disease has involved new areas it is becoming less prevalent, largely because of the general recognition of the means of control.

TABLE 5.—Examination of Suspected Rabid Specimens by Months.

Month	Result of examinations				Positive diagnosis based on—		Animals found positive						Pasture treatments necessitated.
	Positive.	Negative.	Inconclusive.	Total.	Finding of Negt bodies.	Animal inoculations.	Dogs.	Cats.	Humans.	Cows.	Coyotes.	Others itemized.	
1914—													
July	2	15	1	18	2		4						2
August	4	5	1	10	4		3	1					1
September	9	9	4	22	9		8					horse	8
October	4	7		11	4		4						2
November	9	6	1	16	9		8	1					4
December	12	6		18	12		12						7
1915—													
January	6	8		14	6		6						5
February	7	10		17	7		5		2				3
March	8	11		19	8		8						9
April	4	11		15	4		4						
May	7	13		20	7		7						4
June	8	6	1	10	8		2	1					2
July	3	3	1	7	3		3						4
August		5		5									
September	1		1	2	1		1						
October	6	7	2	14	5	1	1			1	4		
November	10	4	6	15	5	5	5			3	2		3
December	13	9	2	21	10	3	4			3	4	12	
1916—													
January	19	7		24	17	2	8			3	1	b'cat	2
February	42	35		73	38	4	11			13	14	24	2
March	52	47		96	49	3	12			21	14	25	10
April	28	23	2	51	26	2	10			8	7	43	3
May	31	25	1	57	31		6		1	5	12	57	4
June	8	29	4	41	8		2			3	3		1
Totals	288	301	27	596	268	20	134	3	3	60	61	22	76

¹Horse, unknown.

²Sheep, ram, two horses.

³Horse, sheep, two bobcats, goat.

⁴Horse, sheep, hog.

⁵Horse, four sheep, wildcat, unknown.

TABLE 6.—Positive Cases of Rabies by Counties.

Alameda	15	San Francisco	2
Contra Costa	5	San Mateo	7
Fresno	7	Santa Barbara	1
Imperial	6	Santa Clara	8
Kings	7	Santa Cruz	7
Lassen	55	Shasta	10
Los Angeles	1	Sierra	4
Madera	2	Slakiyou	3
Marin	1	Sonoma	1
Modoc	107	Stanislaus	1
Napa	1	Tehama	1
Nevada	1	Tulare	9
Placer	1	Tuolumne	6
Plumas	2	Yuba	1
Riverside	4		
Sacramento	1	Total	288
San Benito	3	State of Oregon	2
San Bernardino	6	State of Nevada	2
San Diego	2		

Syphilis.

During the last biennial period, 2,456 specimens of blood were examined by the Wassermann test; 273 of these, or 10.6 per cent, were found positive for syphilis. The specimens were submitted from 66 towns and by 192 physicians. The following public institutions have submitted many specimens for diagnosis:

University of California Infirmary.

Alameda County Infirmary.

Fresno County Hospital.

San Joaquin County Hospital.

San Jose County Hospital.

Sacramento Settlement Association.

Alameda Society for the Study and Prevention of Tuberculosis.

Baby Hospital, Oakland.

Oakland College of Medicine.

Folsom State Prison at Represa.

California State Prison at San Quentin.

California School for Girls, at Whittier.

Whittier Reform School for Boys.

Riverside Cement Works.

Nearly all specimens received from the above institutions were from persons suspected of having syphilis. On the other hand, the Riverside Cement Works—a private institution—has sent a specimen from every employee or applicant for employment, whether the disease was suspected or not. This progressive company has made it compulsory for every employee of this concern to submit to a routine medical examination, a part of which is the blood test for syphilis. Among these men, most of whom are foreigners, a number give positive reactions but show no clinical manifestation and deny infection. The investigation has in several instances demonstrated to this company the important relationship between syphilis and industrial accident and insurance.

Tuberculosis.

The examination of sputum, and sometimes urine, from suspected cases of tuberculosis has increased 60 per cent for this biennial period. Although the increase was large, the total number of examinations was

only 1,506. Inasmuch as the possibility of arriving at a diagnosis through laboratory examination is good in the early stages of this disease, this bureau hopes to be of service to an increasing number of physicians in the campaign against tuberculosis.

Typhoid Fever.

There was an increase of 55 per cent for this biennial period in the number of Widal tests, although the relative total remained about the same for the successive six-month periods. It is to be noted, however, that there is an increase in the number of positive findings. The Widal test is applicable both in the diagnosis of typhoid and the identification of the carrier; for the latter purpose it is not decisive.

It is, of course, recognized that every case of typhoid should be investigated as to the source of infection. The thoroughness as well as the number of such investigations must depend upon the size of the field and of the laboratory force at the disposal of this bureau.

Water Pollution.

With the establishment of the Bureau of Sanitary Engineering, August 8, 1915, the Bureau of Communicable Diseases was relieved of water analysis and other work allied to sanitary engineering. The necessity for a separate bureau has been demonstrated by the work accomplished by this new organization, under the directorship of Mr. C. G. Gillespie.

Miscellaneous Examinations.

The miscellaneous tests include examinations of spinal fluid for tubercle bacilli and meningococci, swabs for glanders bacilli, blood and stools for typhoid and dysentery bacilli, urine for tubercle bacilli, canned milk and eggs for the degree of bacterial contamination, and blood for spotted and typhus fevers.

Examination of Specimens for Cities and Towns.

In Table VII, the 23,465 examinations do not include service for cities having a population of over 25,000, which communities are expected to supply their own free laboratory service. In this table when such cities are recorded the specimens submitted were either for out-of-town patients or from state institutions.

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 7.—Examinations by Towns and Cities.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
Ada	1	68	1	6	76
Agave	3		4	6	13
Alameda	75	112	115	125	427
Albany	1		11	65	77
Alhambra	51	59	68	16	184
Altamont	2	2	4		8
Altadena			10		10
Arto			1	1	2
Arto Loma		2			2
Arvin	2	211	400	105	818
Arviso			5		5
Armadillo				9	9
Arma Ar				1,237	1,237
Arden	20	20	10	2	52
Anderson	10	3	6	3	22
Angels Camp	15	10	37	96	161
Angels				2	2
Antioch	5	14	7	12	38
Arbuckle	4	6	5	5	20
Arleta			2		2
Arroyo		1			1
Arroyo Grande	1	2	1	1	5
Artesia			1	2	3
Ashtland			2		2
Atascadero		2			2
Athens	1		9		10
Atkinson H.L.			1		1
Atwater	2		1	1	4
Arden	8	3	1	2	14
Avalon	4	6			10
Avila				2	2
Artesia	4	5	12	14	35
Bakersfield	162	640	229	116	1,127
Bakers Park		1	1	2	4
Banning	7	1	7		15
Barber			1		1
Barstow		2	1	3	6
Barlett Springs			1		1
Bay View			2		2
Beaumont				3	3
Beaumont			1	1	2
Beaumont Station	7	4		2	13
Beaumont	1		7	1	9
Beaumont	5	13	5	1	24
Beaumont			1		1
Berkeley	35	73	37	65	210
Berkeley University of California Infirmary	265	157	231	213	866
Beverly Hills		7		1	8
Beverly				3	3
Biggs			1		1
Bishop	1			1	2
Bianco			1		1
Bloomington		1		1	2
Bone Lake			1	1	2
Brythe	2	5	3	6	16
Boca	1			1	2
Bonita			2	2	4
Bonita Meadows		1			1
Bonville			1		1
Bowman				1	1
Boyes Springs			1		1
Brea	1	1			2
Brentwood	1	1			2
Bridgman				1	1
Bridgman		2			2
Brown				1	1

nations of miners.

Table 7.—Examinations by Towns and Cities—Continued.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
Bryan		1			1
Burbank	16	2	6	7	31
Burlingame	1	2			3
Byron			2	1	3
Calxico	3	6	3		12
Callistoga	12	4	4	2	22
Calabasas	2				2
Calwa		2		2	4
Campbell	3		8		11
Camp Meeker		1			1
Campo Seco			1		1
Canby				3	3
Carlsbad	2				2
Carmel				3	3
Carpinteria				3	3
Casa Blanca				1	1
Casa Loma		1			1
Casa Verdugo	1	1		1	3
Caspar				1	1
Cayucos		1			1
Cedarville			2	7	9
Centerville	5	2			7
Ceres	1	4	1	4	10
Cerritos			8		8
Charter Oak		4	1	1	6
Cherokee				1	1
Chicago Park		1			1
Chico	38	27	63	52	180
Chilcoot				1	1
Chinese Camp			1		1
Chino		5	13	5	23
Chula Vista		1	3	2	6
Claremont	2	2	18	1	23
Claus				27	27
Clayton				2	2
Cloverdale	6	6		7	19
Clovis		7	1	1	9
Coachella		1	1	2	4
Coalinga	1			6	7
Colfax	2	32	11	14	59
Collinsville				1	1
Colma	14		3	2	19
Colton	14	3		7	24
Columbia	55	124	65	115	359
Comptche		1			1
Compton	4	7	3	1	15
Concord	11	21	13	9	54
Copperopolis	4			1	5
Corcoran	17	15	21	22	75
Cordelia				1	1
Cornell		1			1
Corning	2	8		2	12
Corona	3	2	7	5	17
Corte Madera			1		1
Cottonwood		1			1
Courtland	2	1			3
Covina	15	40	31	15	101
Cowell	1		1		2
Creston		1			1
Crockett		1			1
Crows Landing		2		7	9
Cucamonga		1	1		2
Culver City					1
Cummings			1		1
Cupertino			2		2
Daggett		1			1
Daly City		1	203	52	256

REPORT OF THE STATE BOARD OF HEALTH.

Table 7.—Examinations by Towns and Cities—Continued.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
Danville			7	19	26
Davis	1	2	16	9	28
Davisville	1				1
Decoto	4				4
Delano				2	2
Del Monte	2				2
Del Rey	8	2	7		17
Denair	2		1		3
Dinuba		2	6	2	10
Ditman	2				2
Dixon		10	1	3	14
Dominguez			11		11
Doon			1		1
Dorris	3		2	1	6
Dos Palos	11	26	21	15	73
Downey	1	4	24	174	203
Doyle				3	3
Duarte	1	1	1		3
Dunsmuir	3	6	2	2	13
Durham			7	1	8
Dutch Flat		1			1
Eagle Rock	3	2	3		8
Eagleville		1	6	32	39
East Auburn	8	7	6	3	24
East Newport		2			2
Easton				1	1
Echo	2				2
Edgemont				2	2
Edgewood		1			1
El Centro	2	2		19	23
Elftman Station			6		6
Elizabeth Lake	1				1
Elk Grove	32	12	5	9	58
Elmhurst				1	1
Elmira			1		1
El Monte		9			9
El Pismo	1				1
El Portal	2		1		3
Elsinore	68	3	10	1	82
Emeryville	18	24	2	8	52
Empire			1		1
Escalon	1				1
Escondido		18	9	4	31
Esparto		1		1	2
Ethanac		1	1		2
Etna Mills	6	3	6	6	21
Eubanks	1				1
Eureka	2	11	12	7	32
Exeter	4	2	84	51	141
Fairfield		5		8	13
Fair Oaks	1	3	2		6
Fallbrook	2	2	1		5
Fall River Mills			1		1
Farallone		1			1
Fellows		1	7	1	9
Ferndale	21	1		1	23
Fertilla				1	1
Firebaugh			4		4
Floriston		3	3	5	11
Folsom			1	2	3
Forestville				3	3
Fort Bidwell	2	2	1	9	14
Fort Bragg	6	5	12	4	27
Fort Jones			7	1	8
Fortuna	2	1			3
Fowler	2	1	7	11	21
French Camp	1	1	2	36	40

Table 7.—Examinations by Towns and Cities—Continued.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
French Gulch		1			1
Fresno	31	31	60	73	195
Fruitvale		1	2		3
Fullerton	3	2	3	12	20
Galt	1	1			2
Gardena	52	9	8	15	84
Garvalla		7			7
Gazelle			1		1
Genesee			1		1
Geyer			2		2
Geyersville	3	1	6		10
Giant		1			1
Gilroy		1			1
Glendale	11	43	42	27	123
Glendora	1	6	5	5	17
Goffs		1	1		2
Gonzales	1		9	1	11
Goshen	1				1
Grafton			1		1
Graham			18	1	19
Grasshopper				1	1
Grass Valley	76	88	42	56	262
Greenview			1		1
Greenville	3	5	1	1	10
Gridley	7	12	1	9	29
Grimes	3				3
Gualala				1	1
Guernsey				1	1
Gustine	1	12	2	5	20
Haileyon	1			1	2
Hanford	11	15	63	25	114
Happy Camp				1	1
Harbor Boulevard	1				1
Hardwick		1			1
Hawthorne	9	1	4	4	18
Hayden Hill				2	2
Hayward	37	31	53	28	149
Healdsburg	141	10	123	58	337
Helena			1		1
Hemet	3	7	2	2	14
Hercules			2	4	6
Herakl	1				1
Hermosa			1		1
Heroult				3	3
Highgrove			1		1
Higbland		4		7	11
Hillman Acres			1		1
Hilt			1		1
Hobart Mills	8	7	4		19
Hollister	5	1	8	6	20
Hollywood		1			1
Holtville		5			5
Homestead			1		1
Hoopa		2			2
Hornbrook			1		1
Horse Lake				1	1
Hot Springs	2				2
Huntington Park	29	2	2	7	40
Hyde Park				1	1
Hynes	1				1
Imperial				1	1
Indian Switching Station	1				1
Indio	2			21	23
Inglewood	8	5	5	3	21
Inyokern			1		1
Ione	7	9	6	6	28
Irvin			1		1

Table 7.—Examinations by Towns and Cities—Continued.

	July to November 1914	January to June 1915	July to December 1915	January to June 1916	Total
Irvington	1	22	3	3	38
Irvine	1	1	1	2	5
Jackson			1		1
Jackson	12		1		13
Jamestown	1				1
Jenny Lake		1			1
Jess Valley				6	6
Jewell				1	1
Kala				33	33
Kearney			1		1
Kearneyville				1	1
Kennett	2	1	7		10
Kentfield		3			3
Kerman	1	1	1		3
Kernville				2	2
Kingsburg	2	3	2	10	17
La Grange				1	1
Lagunitas		4	4		8
La Habra	1		1		2
Lake City				8	8
Lakeview, Oreg.		2			2
Lakeport			2		2
Lakeview		1			1
Lamonia Park			15	4	19
Laramie		1	1		2
Lathrop	3		2		5
Lathrop	34	3	15		52
Lathrop	1		1		2
Lathrop Canyon	3				3
Lathrop	1	6			7
Lathrop		1	3		4
Le Grand		1			1
Lehigh Cove			3	3	6
Lehigh	2	1		1	4
Lehigh			5	7	12
Lehigh		2	3	5	10
Lehigh	2	3	2		7
Lehigh			22	6	28
Lehigh Lake		1			1
Lehigh Rock			1		1
Lehigh Shasta			1		1
Lehigh Oak	2	9			11
Lehigh	16	1	5	2	24
Lehigh			3		3
Lehighford		1			1
Lehigh	20	1	10	8	39
Lehigh		2		1	3
Lehigh		1			1
Lehigh Star				1	1
Lehigh Beach	1		1		2
Lehigh		2		1	3
Lehighburg		1	21	3	25
Lehigh		2			2
Lehigh	26	35	271	177	539
Lehigh	3	10	20	30	63
Lehigh	2	13	27	16	58
Lehigh			1		1
Lehigh	2	2			4
Lehigh	1		1	4	6
Lehigh					
Lehigh	1	3	5	6	15
Lehigh			1		1
Lehigh			1		1
Lehigh	3	3	7	1	14
Lehigh		1			1
Lehigh	3		4	14	21
Lehigh				2	2

Table 7.—Examinations by Towns and Cities—Continued.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
Marshall	2				2
Martinez		2	1	1	4
Marysville	11	10	21	27	69
Maxwell	7	5	10		22
Mayfield		1			1
McCloud	1			1	2
McFarland				1	1
McKittrick	6		1	1	8
Mecca				1	1
Mendocino	4	5	9	1	19
Merced	14	26	32	20	92
Merced Falls	15			2	17
Meridian		1	8	1	5
Merrillville				8	8
Millpitas	4	3			7
Mill Valley		5	7	9	21
Mission Canyon				1	1
Mission San Jose		1	1	1	3
Modesto	4	28	10	185	227
Mojave	1				1
Mokelumne Hill				10	10
Moneta	4		6	1	11
Monrovia	28	10	30	8	76
Montague	3	1	3	3	10
Montebello	1	12	55	1	69
Montecito			1		1
Monterey		19	177	156	352
Moorpark		2			2
Moraga			1		1
Mountain View	1			1	2
Mud Springs				1	1
Napa	24	63	56	27	170
National City		5	5		10
Navarro		1	8	1	10
Needles	2	4	7	1	14
Neighbors				2	2
Nevada City	23	16	6	9	54
Newark				1	1
Newcastle	4	12	6	5	27
Newman	15	8	16	21	60
Newville			1		1
Nicasio		3			3
Niehols		1			1
Nicolaus	10	2	3	12	27
Niles	3	2	2		7
Nipoma		2		1	3
Nordhoff				1	1
North Spur				1	1
Norwalk			1	2	3
Novato			1		1
New Pine Creek, Oregon				3	3
Nevada State				2	2
Oakdale	18	7	9	10	44
Oakland	45	218	329	388	980
Oakley				1	1
Ocean Park	1	37			38
Oceanside	36	9	18	29	92
Oleander				1	1
Olinda	1				1
Ontario	8	13	8	12	41
Orange		1	1	2	4
Orange Cove				3	3
Orcutt		1			1
Orland	1	1	4	2	8
Orosl	1	1	19	10	31
Oroville	8	2	14	4	28
Oxnard	5	2		1	8

Table 7.—Examinations by Towns and Cities—Continued.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
Pacheco			1		1
Pacific Grove	2	3	17	22	44
Pacifica				1	1
Palm City		2			2
Palms				4	4
Palo Alto				5	5
Palo Verde			1		1
Panama Acres	1				1
Paradise			1		1
Parker Creek				1	1
Parlier				3	3
Pasadena	7	4	11		22
Paso Robles	1	2	2	5	10
Patterson	2	1	1	6	10
Patton		1	4		5
Penn Grove	2		1		3
Perris	3	4	1	2	10
Pescadero			9		9
Petaluma	338	965	72	41	1,416
Piedmont		8	3		11
Pike	1	3	1	1	6
Pilot Hill				3	3
Pinole		1	2	3	6
Plano	1				1
Pittsburg	4	90	24	52	170
Pittville				1	1
Placentia		3			3
Pleasant Grove				1	1
Pleasanton	4	11	9	34	58
Plumas Junction			1	5	6
Plymouth			1		1
Pomona			6	6	12
Port Costa				12	12
Porterville	15	12	12	7	46
Portola	1	1		1	3
Potrero			1		1
Preston				1	1
Princeton	1	2			3
Point Lobos			1		1
Puente		2	3	4	9
Quincy	17	2	2	2	23
Raisin City			1		1
Ramona Acres			8	1	9
Ramona Park	1				1
Ravendale			1	2	3
Red Bluff	3	1	2	3	9
Redding	8	14	9	12	43
Redlands	7	1	5	6	19
Redondo	5	3			8
Red Rock				7	7
Reedley		2	1	5	8
Represas	61	2		2	65
Richmond	142	205	118	82	547
Rio Vista	1			1	2
Ripon	1		6	2	9
Rivera			2		2
Riverbank	4	1	1	7	13
Riverdale	1	85	1		87
River Mills				1	1
Riverside	14	247	158	446	865
Riverton			7		7
Roberts Islands				1	1
Rocklin	1	2			3
Roop, Nevada				1	1
Roseville	5	5	1	5	16
Ross		2		5	7
Rowland	1				1

Table 7.—Examinations by Towns and Cities—Continued.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
Rust			308	22	415
Sacramento	71	8	8	12	99
Salinas	2	9	14	23	48
San Anselmo	8	8	19	281	306
San Antonio			2		2
San Bernardino	29	3	6	16	54
San Bruno		12	8	29	49
San Diego	21	18	11	15	65
San Dimas	1	2	18	10	31
San Fernando	1	31	43	42	117
San Francisco	8	19	3	17	47
San Gabriel	6	24	49	5	84
Sanger	5	7	5	5	22
San Jacinto		2	1		3
San Jose	23	52	17	17	109
San Juan	4	3	9	2	18
San Leandro		2	4	11	17
San Lorenzo		1		1	2
San Luis Obispo	9	12	4	1	26
San Luis Rey		1	1		2
San Marcos			1		1
San Mateo	11	2	4	1	18
San Pablo	2	2	5	12	19
San Pedro		1		4	5
San Quentin	100		2		102
San Rafael	27	60	38	192	317
Santa Ana	1	2	3	5	11
Santa Anita			1		1
Santa Barbara	8	10	57	41	116
Santa Clara	2	5	4		11
Santa Cruz	13	117	40	41	211
Santa Maria	1	2		4	7
Santa Monica	1	11		11	23
Santa Paula				1	1
Santa Rosa	2	5	6	62	75
Sausalito	10	2	13	4	29
Sawtelle	1	2	2		5
Sawyers Bar	1				1
Scottia	1				1
Seaside			2		2
Sebastopol				4	4
Selby				1	1
Selma	1			5	6
Sherman	3		1	2	6
Shingletown	2				2
Sierra City				1	1
Sierra Madre	2	1	284		287
Sierraville	2				2
Sison	1	1			2
Sites			1		1
Somes Bar				1	1
Sonora	11	5	6	7	29
South Pasadena	20	13	21	8	62
South San Francisco	2	12	3		17
Soulsbyville	1				1
South City		1			1
Spreckels		4			4
Springdale				1	1
Springville				1	1
Stacy				1	1
Standish				2	2
Steger	1	13	4	2	20
Stevenson				1	1
St. Helena	1	3	3	6	13
Stirling City			2		2
Stockton	55	84	176	35	350
Stonyford		2			2

REPORT OF THE STATE BOARD OF HEALTH.

Table 7.—Examinations by Towns and Cities—Continued.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
Strathmore			90		90
Straw				2	2
St. Vincents				1	1
Suisun	3	9	3	9	24
Sultana			1		1
Sunland			1		1
Sunnyvale	12		12	7	31
Sunol			1	1	2
Susanville			2	15	17
Sutter Creek	6	1	3	14	24
Taft	8	8	12	14	42
Tamales	1				1
Templeton		4	3	2	9
Termo			1		1
Thalheim			1		1
Thermal	1	3		8	12
Three Rivers		1			1
Tiburon		2		1	3
Tipton		1			1
Torrance	4	25			29
Tracy	7			5	12
Triangle				2	2
Tropico	2	7	13	8	30
Truckee	4	1	4		9
Tulare	1	5	4	4	14
Tuolumne	1	1	1	2	5
Turlock	12	3	2	11	28
Tustin		1			1
Ukiah	1		1	2	4
Upland	4	6		3	13
Upper Lake				1	1
Vacaville	17	20	14	11	62
Vallejo	2	11	5	13	31
Van Nuys	1	5			6
Venice	3	9	11	4	27
Ventura	2	1	1		4
Vernalis	1				1
Verona		1			1
Victor		1			1
Victorville				1	1
Vinton				2	2
Visalia	12	11	128	37	188
Walgrove	1				1
Walnut Creek	3		4	8	15
Wasco		5	1		6
Waterman	5	9	5	3	22
Watsonville	7	3		4	14
Watts	5		22		27
Weaverville	9	2	1	7	19
Weed	2		1	1	4
West Oakland	2				2
Westwood			1	1	2
West Valley				1	1
Wheatland	13	8	50	3	74
Whittier	26	450	243	254	973
Wildomar		2			2
Williams	10	13	5	13	41
Willits	1		2	1	4
Willowbrook	6		1		7
Willow Creek				1	1
Willows	5	1	1		7
Winchester		1	1		2
Windsor		1	1	4	6
Winhaven					1
Wilton	13	6	5	7	31
Yuba		2	6		8
Total	43	28	21	8	100

Table 7.—Examinations by Towns and Cities—Concluded.

	July to December, 1914	January to June, 1915	July to December, 1915	January to June, 1916	Total
Wrights			1	1	2
Yettam				1	1
Yosemite	4				4
Yountville			1		1
Yreka	9	4	6	4	23
Yuba City	1	2	5	2	10
Yorba Linda				1	1
Yucaipa				1	1
Zekiah	1				1
Totals	3,739	6,310	6,395	7,021	23,465

Depositories for Mailing Outfits.

The establishment of depositories at drug stores, which serve without compensation, in towns and small cities of every county in the state has made it possible for health officials and physicians to supply themselves with mailing outfits on short notice. On the recommendation of the local health officer certain drug stores are designated as official depositories and stocked with outfits. Should the physicians of any particular community desire the establishment of a depository, the local health authority should make recommendations to this bureau, which aims to have a sufficiently large system of these depositories so that all physicians can readily procure mailing outfits without charge.

In Table VIII is presented a list of depositories throughout the state which constitute the system of distribution points for all mailing outfits.

TABLE 8.—Depositories for the Mailing Outfits of the Bureau of Communicable Diseases.

County and town	Drug store	County and town	Drug store
Alameda County—		Kings County—	
Alameda.....	Flatow's Drug Store	Corcoran.....	Corcoran Drug Store
Hayward.....	Roger's Pharmacy	Lake County—	
Livermore.....	McKown & Mess	Kelseyville.....	Pond Drug Store
Niles.....	Snedden's Pharmacy	Lakeport.....	Meddaugh's Drug Store
Oakland.....	Philip & Philip	Lower Lake.....	Dr. H. P. Weber
Pleasanton.....	Peter Rock	Middletown.....	Middletown Drug Store
San Leandro.....	O. J. Lynch's Pharmacy	Lassen County—	
Amador County—		Susanville.....	J. B. Spalding
Ione.....	Model Drug Store	Los Angeles County—	
Sutter Creek.....	Morris & Siebe	Alhambra.....	Central Drug Company
Butte County—		Artesia.....	Artesia Pharmacy
Chico.....	Ben Hastings Pharmacy	Azusa.....	Dolley Drug Company
Gridley.....	The Gridley Pharmacy	Bellflower.....	Chas. F. Story's Pharmacy
Colusa County—		Belvidere.....	The Logan Drug Company
Arbuckle.....	Chas. G. Stinson	Burbank.....	Burbank Pharmacy
Colusa.....	Oscar Robinson	Claremont.....	College Drug Store
Maxwell.....	Fouch's Drug Store	Compton.....	Delmar Pharmacy
Williams.....	J. F. Fouch	Covina.....	W. W. Nash
Contra Costa County—		Downey.....	O. W. Heying
Antioch.....	Palace Drug Company	Eagle Rock.....	Eagle Rock Drug Company
Concord.....	C. W. Klein	El Monte.....	El Monte Drug Store
Crockett.....	Crockett Drug Company	Florence.....	Florence Pharmacy
Pinole.....	Pinole Drug Company	Gardena.....	Gardena Pharmacy
Richmond.....	Ferguson's Drug Store	Glendale.....	Glendale Pharmacy
Fresno County—		Glendora.....	Anderson Pharmacy
Clovis.....	Clovis Drug Store	Hawthorne.....	Rankin's Drug Store
Fresno.....	San Joaquin Drug Company	Huntington Park.....	Batcheller's Pharmacy
Kingsburg.....	Reliable Pharmacy	Inglewood.....	Fred J. Pehrnsen & Son
Reedley.....	Reedley Drug Company	Lordsburg.....	Kenyon's Pharmacy
Sanger.....	O. A. Brehler	Los Angeles.....	Paschall's Pharmacy
Selma.....	Dusey & Sawrie	Monrovia.....	Thos. Neville
Glenn County—		Norwalk.....	Norwalk Pharmacy
Orland.....	Birch & Company	Ocean Park.....	Moody's Drug Store
Humboldt County—		Pasadena.....	The Modern Pharmacy
Arcata.....	Skinner-Duprey Drug Company	Pomona.....	Campbell & Pierce
Eureka.....	Keller-Bohmanson Drug Company	San Dimas.....	San Dimas Drug Company
Fortuna.....	Bowman's Drug Store	San Fernando.....	San Fernando Drug Company
Imperial County—		Venice.....	Lutz Pharmacy
Brawley.....	Fulton's Pharmacy	Whittier.....	Whittier Pharmacy
Calexico.....	Aitken's Pharmacy	Marin County—	
Holtville.....	Holtville Pharmacy	Belvedere.....	Belvedere Pharmacy
Imperial.....	Imperial Pharmacy	Mill Valley.....	Lockwood Pharmacy
Kern County—		San Anselmo.....	Poppy Pharmacy
Bakersfield.....	Baer Brothers	San Rafael.....	Day's Pharmacy
Delano.....	Ramsay's Pharmacy	Sausalito.....	Sausalito Drug Company
East Bakersfield.....	Kern Drug Company	Mendocino County—	
Taft.....	Taft Pharmacy	Fort Bragg.....	Pacific Drug Store
Tehachapi.....	Yerian Brothers	Mendocino.....	C. O. Packard Drug Store

TABLE 8.—Depositories for the Mailing Outfits of the Bureau of Communicable Diseases—Continued.

County and town	Drug store	County and town	Drug store
Mendocino County—Continued.		Santa Barbara County—	
Ukiah.....	Gibson's Pharmacy	Santa Barbara.....	Sterling Drug Company
Willits.....	Rex Drug Company	Santa Clara County—	
Merced County—		Campbell.....	Orchard City Drug Company
Dos Palos.....	Dos Palos Drug Store	Los Gatos.....	Geo. A. Green's Pharmacy
Los Banos.....	Bertholf Drug Store	Mountain View.....	E. T. Johnson
Merced.....	Merced Drug Company	Palo Alto.....	University Pharmacy
Modoc County—		San Jose.....	Curtis & Henkle Drug Company
Alturas.....	Gibson Drug Company	Santa Clara.....	Madden's Pharmacy
Cedarville.....	Cedarville Drug Company	Santa Cruz County—	
Monterey County—		Santa Cruz.....	Palmer Drug Company
Monterey.....	Palace Drug Company	Watsonville.....	Steinhauser & Eaton
Salinas.....	Krough's Drug Store	Shasta County—	
Napa County—		Redding.....	Powell Pharmacy Company
Napa.....	Arighi & Ballerini	Sierra County—	
St. Helena.....	Smith's Pharmacy	Downsville.....	Downsville Drug Store
Nevada County—		Loyalton.....	Loyalton Drug Company
Nevada City.....	Dickerman Pharmacy	Siskiyou County—	
Orange County—		Dunsmuir.....	Red Cross Drug Store
Anaheim.....	Mullinix Drug Store	Etna Mills.....	W. J. Balfrey
Fullerton.....	Pinch's Drug Store	Slisson.....	Mt. Shasta Pharmacy
Orange.....	K. E. Watson Company	Yreka.....	Avery Drug Company
Santa Ana.....	Rowley Drug Company	Solano County—	
Placer County—		Benicia.....	Benicia Pharmacy
Auburn.....	J. G. McLaughlin	Dixon.....	California Drug Store
Colfax.....	J. L. Butler & Son	Rio Vista.....	Rio Vista Pharmacy
Dutch Flat.....	Dr. J. H. Johnston	Suisun.....	Criterion Drug Store
Lincoln.....	Ingram's Drug Store	Vacaville.....	Vacaville Drug Company
Loomis.....	Loomis Pharmacy	Vallejo.....	Vallejo Drug Company
Plumas County—		Sonoma County—	
Quincy.....	Quincy Drug Store	Healdsburg.....	Rathke's Pharmacy
Riverside County—		Petaluma.....	Young-Herold Drug Company
Banning.....	Banning Drug Store	Stanislaus County—	
Beaumont.....	Robert Fulton	Ceres.....	Ceres Drug Company
Corona.....	R. F. Billings Estate	Modesto.....	Maze Drug Store
Elmore.....	Wright Drug Company	Newman.....	Pioneer Drug Store
Hemet.....	Wedemeyer's Pharmacy	Oakdale.....	Endcott's Drug Store
Perris.....	Perris Pharmacy	Turlock.....	Turlock Drug Company
Riverside.....	F. A. Gardner & Company	Tehama County—	
Sacramento County—		Corning.....	Thompson's Drug Store
Elk Grove.....	"Ye Medicine Shop"	Red Bluff.....	Elmore Pharmacy
Folsom.....	S. H. & F. P. Burnham	Trinity County—	
San Bernardino County—		Weaverville.....	D. B. Fields, M.D.
Chino.....	Reher's Pharmacy	Tulare County—	
Colton.....	Colton Pharmacy	Dinuba.....	McCracken's Pharmacy
Needles.....	Needles Drug and Jewelry Company	Exeter.....	Mixter Pharmacy
Redlands.....	Mont P. Chubb Drug Company	Lindsay.....	Lindsay Drug Company
San Bernardino.....	Owl Drug Store	Orosi.....	H. L. Huntington
San Diego County—		Porterville.....	Claudes Pharmacy
Chula Vista.....	Wigginton's Pharmacy	Tulare.....	E. Allen Test
Coronado.....	Central Drug Store	Visalia.....	J. M. Boynton
East San Diego.....	Parkin Drug Company	Woodlake.....	Woodlake Drug Company
Esccondido.....	Rolfes Drug Company	Tuolumne County—	
La Mesa.....	La Mesa Drug Store	Sonora.....	Union Drug Store
National City.....	Keller's Drug Store	Tuolumne.....	Bigelow's Drug Store
Oceanside.....	Exton & Nichols	Ventura County—	
Ramona.....	Thos. Jerman	Nordhoff.....	Ojal Drug Store
San Diego.....	Ferris & Ferris	Santa Paula.....	Cauch's Drug Store
San Joaquin County—		Ventura.....	Pioneer Drug Store
Stockton.....	Eagle Drug Store	Yolo County—	
San Luis Obispo County—		Davis.....	Campbell's Pharmacy
Arroyo Grande.....	W. A. Conrad, Jr.	Winters.....	Day's Drug Store
Cambria.....	Peoples Drug Store	Woodland.....	John V. Leithold
Paso Robles.....	W. C. Bennett	Yuba County—	
San Luis Obispo.....	Peoples Pharmacy	Marysville.....	Rubel's Drug Store
San Mateo County—		Wheatland.....	Wheatland Pharmacy
South San Francisco.....	Peninsula Drug Co.		

Branch Laboratories.

For the convenience of the practicing physician and in order that the reporting of specimens may be expedited, the State Board of Health maintains in connection with the main laboratory of the Bureau of Communicable Diseases, located at Berkeley, three branch laboratories. At these branches, suspected specimens are examined: swabs for diphtheria bacilli, sputum for tubercle bacilli, blood for the Widal reaction, pus for gonococcus, blood smears for malaria parasites. The Pasteur treatment is administered also at these branches.

*Northern California Branch,
406 Inverness Building,
Sacramento, California.*

This branch was in charge of Dr. J. R. Snyder, who has been given a leave of absence for military service on the Mexican border. During the absence of Dr. Snyder, his assistant, Mrs. Lucelle Ramsey, is in temporary charge, under the supervision of Dr. F. F. Gundrum, vice president of the Board. The work of this branch includes the diagnosis of specimens from the following counties:

Alpine	Modoc	Sierra
Amador	Mono	Siskiyou
Butte	Nevada	Sutter
Calaveras	Placer	Tehama
Colusa	Sacramento	Trinity
El Dorado	San Joaquin	Yolo
Glenn	Shasta	Yuba
Lassen		

This branch examined a total of 2,276 specimens. These were divided according to disease and number as follows:

Diphtheria	1,353,	positive	229
Gonococcus	5,	positive	0
Malaria	126,	positive	27
Tuberculosis	353,	positive	75
Typhoid	439,	positive	120
Miscellaneous	1,	positive	1

*San Joaquin Valley Branch, Fresno,
710 Griffith-McKenzie Building.*

Dr. W. W. Cross is in charge of this branch which serves the following counties:

Fresno	Madera	Stanislaus
Kern	Mariposa	Tulare
Kings	Merced	Tuolumne

During the biennial period a total of 1901 specimens were examined:

Diphtheria	1,491,	positive	371
Gonococcus	11,	positive	1
Hookworm	2,	positive	0
Malaria	32,	positive	3
Tuberculosis	164,	positive	36
Typhoid	191,	positive	5
Miscellaneous	10,	positive	4



*Southern California Branch, Los Angeles,
1209 Brockman Building.*

Dr. Walter V. Brem is in charge of the southern branch. This branch carries on diagnostic work for the following counties:

Imperial	Orange	San Diego
Inyo	Riverside	Santa Barbara
Los Angeles	San Bernardino	

There were, during the biennial period, 4,565 specimens examined These were divided as follows:

Diphtheria	3,834, positive	889
Gonococcus	45, positive	4
Malaria	17, positive	2
Rabies	3, positive	3
Tuberculosis	267, positive	87
Typhoid	397, positive	23
Miscellaneous	2, positive	1

Main Laboratory.

The field investigations of the Bureau of Communicable Diseases and the preparation of vaccines are the work of the main laboratory situated in the Hygiene and Pathology Building, on the campus of the University of California. In addition to this, the main laboratory serves the following counties for diagnostic work:

Alameda	Marin	San Mateo
Contra Costa	Mendocino	Santa Clara
Del Norte	Monterey	Santa Cruz
Humboldt	Napa	San Luis Obispo
Lake	San Benito	Solano

The Staff.

The staff of the Bureau of Communicable Diseases is as follows:

Director.

James G. Cumming, M.D., M.S.P.H., Dr.P.II.

Epidemiologists.

J. C. Geiger, M.D., M.Ph., Assistant Director.

Frank L. Kelly, M.D., M.S.

Consulting Parasitologist.

Wm. B. Herms, M.S.

Bacteriologists.

Violet M. Bathgate, M.S.

Grace A. Macmillan.

Walter V. Brem, M.D., in charge of the southern branch, Los Angeles.

W. W. Cross, M.D., in charge of the San Joaquin Valley Branch, Fresno.

J. R. Snyder, M.D., in charge of the northern branch, Sacramento.

Clerical Force.

Florence B. Shackelford.

Mary G. Beck.

Laboratory Helpers.

P. E. Rudolph.

R. V. Lee.

Research Work and Public Health Instruction.

In addition to the work listed above, research work is carried on in connection with field investigations; correspondence relative to public health matters is carried on in reply to letters of inquiry; papers are given before various audiences in addition to class lectures in hygiene and preventive medicine at the Medical School of the University of California.

REPORT OF THE CONSULTING PARASITOLOGIST.

By WILLIAM B. HERMS, M.S.

No doubt the most important assistance which the Consulting Parasitologist has to render the State Board of Health is that which relates to malaria and its control, primarily through mosquito abatement. This feature of the work is followed closely in importance by anti-housefly propaganda. In addition there is frequent demand for the identification of various animal parasites coming through the channels of the State Hygienic Laboratory.

The former designation of this office, namely "Officer in charge of Malaria Investigations" implies in the change to the present title merely an expansion of duties with at least the original stress on malaria investigations. The office involves both field work and lectures, technical and popular, also preparation of bulletins and shorter papers, certain laboratory routine and frequent consultations with officers of the State Board of Health—all of which is rendered without cost to the State Board of Health because of the spirit of hearty cooperation as manifested by the University of California in many matters of state concern.

Mosquito Investigations.

The first effort on the part of the University of California to assist in the abatement of a mosquito nuisance was made in Marin County in the vicinity of San Rafael at the request of Mrs. George T. Page of



Searching for anopheles mosquito larvæ in a typical breeding place during the state-wide mosquito and malaria survey of the California State Board of Health.

the San Rafael Improvement Club. This request is dated April 5, 1903. An investigation was made by Professor C. W. Woodworth and assistants with the result that oil was applied according to recommendation to certain salt marsh areas responsible for the trouble. This was followed by the employment of Mr. A. L. Ashman during the spring and summer of 1904 for the purpose of mosquito abatement.

In March, 1904, the Burlingame (San Mateo County) Improvement Club invited Professor Woodworth to make a similar investigation of the mosquito problem in the vicinity of Burlingame. Professor H. J. Quayle was detailed to organize and conduct the campaign. Here again the main trouble was traceable to the neighboring salt marshes. During the spring and summer of 1905 Professor Quayle, assisted by students from the University of California, waged a systematic anti-mosquito campaign with marked success. This campaign is described in Bulletin No. 178, University of California Agricultural Experiment Station. Considerable permanent corrective work was undertaken together with a systematic study of the mosquitoes of that vicinity. During the mosquito seasons of 1911 and 1912 a salt marsh mosquito campaign was conducted by the writer with the help of students in the vicinity of Bay Point in Contra Costa County under the patronage of the Smith Lumber Company.

The writer first became definitely identified with the mosquito problems of California in December, 1909, when he received a letter from Mr. F. E. Morgan of Penryn, Placer County, requesting that an investigation be made of the malaria-mosquito situation in that vicinity. This investigation resulted in organizing a systematic campaign against mosquitoes during the spring and summer of 1910, terminating in a marked reduction of malaria particularly in school children. The success of the work was largely due to Mr. H. E. Butler, chairman of the executive committee. This campaign deserves the distinction of being the first organized anti-malaria crusade in the state. The campaign in Penryn had hardly begun when citizens of Oroville, Butte County requested that a similar campaign be organized there. These two campaigns are discussed in detail in the writer's book on "Malaria—cause and control."

The movement spread rapidly, so that within the next two years active crusades against malaria-bearing mosquitoes had been organized in a number of localities, from Bakersfield in Kern County to Los Molinos in Tehama County. One of the chief obstacles from the very beginning was the matter of securing adequate funds to carry out an efficient crusade. The expenses thus far have been largely borne by a relatively few public spirited citizens. Hence very early in the work a plan was sought whereby funds might be secured on a more equitable basis, with the result that after several failures, an act of the legislature was approved by the Governor on May 29, 1915, known as the "Mosquito Abatement District Act."

Mosquito Abatement Districts.

This act provides for the formation, government, operation and dissolution of such districts, to facilitate the extermination of mosquitoes, flies and other insects; and to provide for the assessment, levy, collection and disbursement of taxes therein. It provides that such tax must not be greater than sufficient to raise the amount estimated by the board of trustees of the district, appointed by the county supervisors, and must not be in excess of ten cents on each one hundred dollars of taxable property in such district.

The first district to be organized under the new law was the San Mateo District, in ———, 19—, the second being Marin County District No. 1, both involving salt marsh areas. These two districts are now in

charge of Mr. N. M. Stover, a graduate of the University of California. A third salt marsh district has been organized in San Mateo County, known as the Pulgas District. The first district to be organized involving fresh water mosquitoes of the malaria bearing type was at Bakersfield—the Morris District. Oroville has a well organized district, while Riverside and Woodland have districts now in process of formation.

The act makes it possible to include both incorporated and unincorporated territory or portions of both in the same district, thus protecting communities which often draw their supply of mosquitoes very largely from the outskirts, which may be outside the corporate limits.

It is of vital importance that the direction of the work be placed in the hands of men who are scientifically equipped in the matter of mosquito control. The mere application of oil to a pond in a haphazard way



A field of growing rice. Since the conditions in this field make it an ideal breeding place for mosquitoes, persons living in the dwelling house shown in the picture are in danger of contracting malaria. The formation of mosquito abatement districts helps to solve the problems connected with the breeding of mosquitoes in the rice fields.

will not abate the mosquito nuisance. Permanent corrective measures must be applied with a minimum expenditure for oil and other temporary agencies.

With the recent rapid development of the rice industry in California there is injected another important factor in the public health problem of the state. Rice culture is most successful in parts of California where also the *Anopheles* mosquito thrives best. The growing of rice demands that the entire acreage under cultivation be flooded with water, from approximately June first to October fifteenth. This water with the attendant pools resulting from seepage, faulty construction and carelessness, breeds myriads of mosquitoes which are unfortunately very largely *Anopheles*.

Careful investigation of the mosquito-malaria problem in the vicinity of the rice fields will be carried on during the mosquito-malaria survey under way this summer. It seems quite probable that much of the

trouble will be remedied as the culture of rice in the state is placed on a more scientific basis.

The control of mosquitoes and the eventual control of malaria is a matter of intensive, persistent effort; but few activities will bring greater returns in health, happiness and efficiency. A wide distribution of Special Bulletin No. 9 is strongly urged.

The Mosquito-Malaria Survey.

A notable advance has been made in the control of malaria in the state, in that the State Board of Health has authorized a malaria-mosquito survey, this to be done in cooperation with the University of California under the direction of the writer assisted by Mr. Stanley B. Freeborn, Instructor in Entomology, who was made "Inspector" for this purpose. It was estimated that the expense of the survey would approximate \$2,150 for the first summer including cost of automobile, maintenance, hotel expenses and general equipment, there being no charge made to the State Board for the services of either the writer or Mr. Freeborn.

The equipment consisted of maps of various kinds, collecting outfit and mosquito receptacles, microscope, stain, camera, etc. A five-passenger touring car was selected for the work. The survey began May 10th and it is expected that a careful study of the northern portion of the state will be completed by the 10th of August.

The object of the survey is threefold: first, *scientific* in that an accurate knowledge of the specific occurrence and distribution of mosquitoes and malaria is desired; second, *economic* and *remedial* in that accurate information relative to the breeding places of Anopheline mosquitoes is required in order that definite and practical suggestions for control can be offered; and third, *educational*, in so far as literature is being distributed, lectures are given, conferences are held and much personal work done among the ranchers.

It is expected that a complete report of the survey will be published on completion of the work. No doubt the reporting of malaria on the part of physicians will be stimulated, and there will also certainly be a marked increase in the number of mosquito abatement districts as the result of this work.

Anti-Housefly Propaganda.

There are very few communities in the state which the writer has not reached either directly or indirectly with his anti-housefly propaganda, with the result that many communities have during the past six or seven years undertaken work along this line. In many instances the housefly crusade has been an important part of the general clean-up campaign. Indeed the writer has repeatedly said that a community which does not include flies and mosquitoes in its clean-up program is working on a 50 per cent efficiency basis.

While every legitimate effort to control the housefly deserves more or less commendation, the writer believes that altogether too much emphasis is placed on fly traps. To breed flies in the back yard and catch them in front of meat shops, restaurants, grocery stores, etc., which are usually visited en route, is not good public health practice. Flies are primarily food contaminators and this is usually accomplished before they are captured. The sanitary disposal of manure with reference to

fly breeding, and the proper storage and disposal of household waste, meatshop offal, garbage, etc. needs far more emphasis. That flies can be controlled has been amply proved in all communities and on all ranches where scientific care relative to the foregoing matters has been practiced.

No doubt the wide distribution of Special Bulletin No. 9 will bring further results in this direction.

Laboratory Examinations.

The growing demand on the part of physicians for accurate laboratory diagnosis is the chief cause for the steady increase of specimens received for proper determination. Thus insects of many kinds are received with letters requesting information relative to their venomous properties or parasitic habits. Specimens of fæces, vomit, and blood are received with requests to determine probable parasitic infection, also portions of tapeworms, other parasitic worms, etc., with request for identification.

Exhibits and Lectures.

Several exhibits have been worked up recently relating to "Flies," "Mosquitoes and Malaria," "Animal Parasites Affecting the Public Health," etc. These exhibits have been used at the State Fair, the Health Officer's Conference, and for other purposes.

A comprehensive series of lantern slides has been accumulated, practically all of which are made from photographs taken under the direction of the writer. These slides are being widely used by the writer and associates in lectures relating to "Rural Public Health," "Flies and their Control," "Mosquitoes and Malaria," "Mosquito Control," "Animal Parasites and the Public Health," etc.

It is recommended that duplicates be made of many of the slides so as to allow a wider use of the same. With the advent of the moving picture in the field of public health it is further urged that a series of moving pictures be added to the working material of this office. Several of these might be appropriately worked up in the form of scenarios.

REPORT OF THE BUREAU OF SANITARY ENGINEERING

By C. G. GILLESPIE, Director.

The Bureau of Sanitary Engineering was created by an enactment of the 1915 legislature, approved May 24, 1915, effective August 8, 1915, as follows:

“The state board of health shall maintain a department of sanitary engineering which shall have charge of such matters and shall have such powers as may from time to time be delegated to it by the state board of health. The board shall appoint a director of the department, who shall be a graduate sanitary engineer, whose salary shall be four thousand dollars per annum. The state board of health may employ and fix the compensation of other additional professional and clerical assistants and such compensation shall be paid from the funds provided for the maintenance of the department of sanitary engineering. The sum of thirty thousand dollars is hereby appropriated for the purpose of this act. Claims against the fund shall be audited by the state board of health and by the board of control and shall be paid by the state treasurer upon warrants drawn by the state controller.”

This, the first biennial report of the bureau, for the period ending June 30, 1916, limited to the period of its existence beginning August 8, 1915, will comprise a more detailed history of its purpose and mode of activity than will probably be found necessary in subsequent reports. Vital policies have been determined probably applicable many years into the future, and in certain lines need is felt for legislation to make the work of the bureau more quickly effective. In particular this report will relate to a summary of the work accomplished and to those numerous problems which have presented themselves only to be untouched for lack of opportunity and facilities.

The broad aim of the bureau is to aid or compel the providing of safe and satisfactory water supplies for communities, individuals and the industries, the preventing of pollution and fouling of streams, wells and water supplies, and the providing of sewage and garbage disposal for communities, individuals and the industries which will be inoffensive, protective of health, and economical; in other words, to promote health conservation and the fuller enjoyment of life through the special field of sanitary engineering. Focus has been directed chiefly on those matters related most closely to the promotion of health and these principally where the largest population would be benefited. It must be apparent, therefore, that even before work could be properly undertaken a state-wide sanitary survey was necessary to determine where the most fruitful fields for endeavor lay and how such policies and standards as were of necessity adopted in individual cases at the outset would apply to the state in general. This survey work has been conducted with or in advance of the presentation of problems in given localities and has covered approximately one-fourth of the state. It is imperative that the area be quickly extended, not only to afford the proper viewpoint broader than any local one so necessary to the public

interest, but to put an early stop to stream, lake and bay pollution before the custom becomes established. It would be a calamity if this state, naturally a vacation land, should allow its waterways and pleasure grounds to fall into the same category in regard to filth with many of those in the industrial East.

A very creditable amount of specific service has also been rendered in the nine months working period, as may be indicated by the following summary and the amplification at the close of this report.

Sewage Disposal.

Permits granted	26
Inspections	108
Reports to the community	79
Reinspections	17
Plans reviewed	12
Tests of sewage treatment plants	5
Stream pollution surveys	8

Water Supplies.

Permits granted	9
Inspections	62
Reports to the community	40
Reinspections	17

Special Investigations.

Shellfish bed pollution	3
Sanitary surveys	1

Distribution of the above work by communities is as follows:

Alhambra	Hayward	Rio Vista
Alviso	Healdsburg	Riverdale
Anaheim	Hemet	Riverside
Antioch	Hermosa Beach	Rocklin
Arroyo Grande	Holtville	Sacramento
Auburn	Imperial	San Bernardino
Benicia	Indio	San Bruno (Belle Air
Beverly Hills	Isleton	Addition)
Brawley	Kennett	San Diego
Calexico	King City	San Fernando
Calistoga	Keswick	San Jacinto
Calwa (Santa Fe shops)	Lompoc	San Jose
Carpinteria	Long Beach	San Luis Obispo
Castella	Loomis	San Miguel
Chico	Los Angeles	Sanger
Chino	Los Banos	Santa Barbara
Cloverdale	Los Gatos	Santa Clara
Colfax	Los Gatos (Oak	Santa Maria
College Park	Sanatorium)	Santa Monica
Colma	Madera	Santa Paula
Colton	Marysville	Santa Rosa
Compton	Mendocino State Hospital	Sausalito
Coronado	Menlo Park	Sebastopol
Davis	Mill Valley	Sonoma
Dunsmuir	Moraga	Sonoma State Home
Eagle Rock (Strickland	Muir Woods	South Pasadena
Home for Boys)	Napa	St. Helena
El Centro	National City	Stockton
Escondido	Newcastle	Tahoe
Eureka	Oceanside	Truckee
Firebaugh	Ontario	Ukiah
Folsom	Orange	Universal City
Folsom Prison	Pasadena	Vacaville
Fowler	Paso Robles	Venice
Fresno	Pittsburg	Walnut Creek
Fullerton	Pomona	Walnut Grove (Alex. P.
Grass Valley	Redding	Brown)
Gridley	Redlands	Whittier
Guerneville	Redondo Beach	Willows
Hanford	Reedley	Winters

In the laboratory the bureau has analyzed water and sewage for sanitary purposes as follows:

Water.

Bacteriological examinations -----	1,085
of which 59.2 per cent showed sewage contamination.	
Partial chemical examinations -----	1,074
Complete chemical examinations -----	4
Sanitary chemical examinations -----	3
Microscopic examinations -----	5

Sewage.

Bacteriological examinations -----	23
Sanitary chemical examination -----	22

Special.

Clams, oysters, etc -----	8
---------------------------	---

Twenty-one communities now have their supplies examined regularly by the laboratory, listed as follows:

Antioch	Escondido	Los Banos
Auburn	Eureka	Merced
Benicia	Firebaugh	Redding
Calexico	Fortuna	Redlands
Calistoga	Kennett	Rocklin
Eagle Rock	Livermore	Ukiah
El Centro	Loomis	Ventura

About four thousand letters have been written in the past ten months of which fully 30 per cent have been in response to requests for miscellaneous sanitary advice.

In addition, two papers were prepared for presentation at the Municipalities Convention at Oakland, October, 1915, as follows: "Classification of Streams from the Standpoint of Sewage Pollution" and "Status of Sewage Disposal in California."

Three pamphlets have been issued entitled: "Sewage Disposal for Isolated Residences," "Sanitation in the Mountains" and "Disposal of Sewage in Rural School Districts."

Organization.

A staff as follows has been gradually assembled, with quarters consisting of an office and sanitary laboratory on the campus of the University of California at Berkeley, where advantage is taken of the work of the University in allied lines:

Director, Mr. C. G. Gillespie. University of California, B.S., Department of Civil Engineering, 1907; operator-in-charge experimental filtration plant of the Peoples Water Company, Oakland, Cal., 1907-8; field work, U. S. Irrigation and Drainage Investigations, 1908; assistant engineer, office of C. G. Hyde, private work and for University of California, 1900-11; assistant Minneapolis Filter Plant Construction, 1911-12; assistant engineer, San Francisco Water Supply, 1912; special engineer, California State Board of Health, 1912-13; assistant engineer, office of Geo. W. Fuller, consulting sanitary engineer, New York, 1913-15; assistant engineer, Sacramento, Cal., 1915.

Assistant Engineer, Mr. Ralph Hilscher. Beloit College, Wisconsin, B.S., 1908; Massachusetts Institute of Technology, 1909-10; engineering assistant, Massachusetts State Board of Health, 1910-11; assistant engineer, Illinois State Water Survey, 1911-15; acting chief engineer, Illinois State Water Survey, 1915.

Chemist and Bacteriologist, Mr. Frank Bachmann; Rensselaer Polytechnic Institute, 1905-7; University of Illinois, 1907-10, B.S. in Chemistry; assistant chemist and bacteriologist, Illinois State Water Survey, 1907-10; assistant chemist and bacteriologist, Sanitary District of Chicago, 1910-15.

Sanitary Engineering Assistant, Mr. Joseph Doman; University of California, B.S., Department of Civil Engineering, 1914; draughtsman, Whitehall Estates Irrigation Project, 1914-15; in charge U. S. Drainage experiments near Fresno, 1915; miscellaneous sanitary work with University of California, 1916.

Clerk, Miss A. M. Tridel.

Laboratory Helper, Cornelius Herb.

By November the laboratory and engineering work were well under way. For its working mechanism the bureau has practically transplanted that built up by similar bureaus in Eastern states held as most advanced in health conservation. The bureau was fortunate in securing for its technical staff assistants having had long connection with health matters in Massachusetts and Illinois.

Classification of Work.

Most of the work of the bureau at present undertaken may be embraced under the following heads, classified from the standpoint of mode of activity:

1. Administration of the state laws on water pollution and sanitary supplies.
2. Field work.
 - (a) Original inspections, investigations, reports for improvement of sewage disposal and water supplies, prevention of stream pollution and abatement of sanitary nuisances, either as a result of complaints filed or on the initiative of the bureau itself.
 - (b) Reinspection to compel compliance with requirements of the bureau as laid down above.
 - (c) Field tests of sanitary engineering works, *e. g.*, sewage disposal and water purification plants.
3. Approval and review of plans for water purification and sewage treatment.
4. Educational.
5. Advice, largely by correspondence, on rural sewage disposal, water supply, summer resort sanitation, disposal of industrial wastes, swimming pool sanitation and miscellaneous sanitary engineering inquiries.
6. Laboratory work on sanitary quality of water supplies, studies of stream pollution and operation of sewage disposal plants.

1. ADMINISTRATION OF THE STATE LAWS ON WATER POLLUTION AND SANITARY WATER SYSTEMS.

The Statutes of 1913, amended 1915, make it unlawful for any public body to supply water which is polluted or dangerous to health and also require all public bodies supplying water for domestic use to apply for and hold a written permit for that purpose from the State Board of Health. Supplies furnished to less than two hundred connections are exempt from this provision, however, unless complaint is lodged with the State Board of Health by a user or some public officer. The board may deny the petition for permit if the supply is dangerous or unhealthful and, in the case of existing works, may lay down conditions on which the use of the supply may be continued. It is to be noted that *healthfulness* and not *purity*, i. e. freedom from all objectionable qualities, determine whether the supply is entitled to a permit.

The statutes on sewage disposal and contamination of streams adopted in 1907 and amended in 1911 and 1913, make it unlawful for any animal or vegetable matter or substance offensive, injurious or dangerous to health to be discharged into waters, surface or subterranean, used or intended to be used for human or animal consumption, or onto land adjoining such waters which may drain into them. It is also unlawful to construct camps, tents, temporary houses, privies, cesspools or sewer pipes for the carrying of "impure water, gas, vapors, oils, acids, tar or other matter or substance offensive, injurious or dangerous to health," whereby any of such substance draining therefrom shall empty, flow, seep, drain, condense or otherwise pollute or affect any of such waters so intended for human or animal consumption or for domestic purposes. All persons and public bodies desiring to dispose of sewage, etc., in such a way that waters are apt to be affected thereby, are required to hold a permit for that purpose from the State Board of Health. The permit is to be granted if no water pollution is evident or, in the case of existing works, conditions may be imposed under which the practice may be continued temporarily. In all cases permits are granted or refused only after personal investigation and study of all angles of the local situation by a member of the bureau. Thirty-five such actions have already been taken, involving a more or less exhaustive study of the problem, followed by report to the State Board of Health and the obtaining of much needed improvements in most cases before action has been recommended.


Failure to hold a permit leaves the person or public body open to injunction. How serious a weapon injunction will prove to be has not yet been determined for the reason that the board has not had time for such prosecutions and has avoided the necessity. Probably the greatest weakness and one demanding amendment to the laws is the limitation of permit requirement purely to sanitary considerations. It is not sufficient that water supplies should be free of sewage pollution; as delivered they should also be free of turbidity, algæ, tastes, odors, high color and hardness. They should meet the practical definition of "pure" water. Likewise, sewage disposal should not only be free of possibilities of water pollution but should be as devoid of nuisance production as is practicable. Responsibility for the above results should always remain locally, but the State Board of Health

alone should stipulate the results and be empowered to see to it that these results are quickly delivered. As a constructive body it should suggest the means to the end to be adopted, but it should studiously leave the responsibility for obtaining the results required with those in charge.

Such censorship by a body of experts in a position gradually to accumulate the greatest fund of working data and correct practice, including as it does approval of plans for sanitary structures, automatically brings the work of so-called sanitary engineers under a much-needed supervision and will result in unquestioned benefit, not only to the party or community paying for the work, but to the public at large and to reputable sanitary engineers who can thus draw on the bureau as a sort of clearing house for sanitary engineering statistics and practices.

It is not sufficient, however, that designs should be correct. Construction should not depart from or miscarry the design. The bureau should be able to occasionally inspect construction for this purpose. Furthermore, without operation any plant is bound to be a failure. There are several thoroughly good plants in this state which are to all appearances failures, solely because of insufficient and unintelligent attendance. And what is more, there are no indications that the situation will improve until pressure is brought to bear from without in the guise of damage suits or of mandatory powers given to the State Board of Health similar to those held by the State Board of Health of Maryland, whereby operators can be removed or appointed at the discretion of that body.

Policy on Admissible Stream Pollution. No larger question presented itself at the outset than what should be the attitude toward sewerage into streams. The line of least resistance and the practice in the East indicated that no bar should be placed on continuation of the use of streams for sewage disposal. Conditions in the East, however, differ much from those in California. The East is industrial, a large portion of California is a vast playground. In a majority of the Eastern streams contamination has reached a point where the very appearance of the stream forbids its use for drinking purposes and every sane individual is held to be aware of the risks therein. Sewage discharge is curbed, therefore, only sufficient to maintain the supply redeemable for domestic use by water treatment, and surely to prevent nuisances. The burden of responsibility for pure water thus rests on the user, usually a larger or smaller community. Such a policy, though not conserving the public health to the maximum extent, is dictated by the economic consideration that the extreme sewage treatment necessary to keep the streams safe in the raw state would be tremendously more expensive than purification of that portion of the stream used for domestic purposes. Even now, however, there is a notable movement, yet filled with difficulties, at redemption of many Eastern streams which have received wastes for decades. In the West, congestion of population is still uncomparable to that of the East, and great industries have not as yet sprung up along our streams, contributing their quota of offensive wastes. On the average, therefore, California streams are in a much higher state of purity than those of the East,



and from appearance are popularly accepted as fit sources of drinking water. Whether this feeling of safety is false or not matters little as long as the practice continues of promiscuous use of the streams for random or constant drinking water supplies with inadequate or haphazard treatment, if any. In most cases there is no treatment. The mere fact that the public does not as yet appreciate the possibility of risk in so many of our potable streams susceptible to pollution, makes it imperative that the public individually and collectively, be protected in its false sense of security, at least until such time as the true danger is universally realized. The attitude of this board, therefore, has been to discourage relentlessly direct discharge of sewage into streams and at the same time to begin inculcating in the minds of the public a fear of surface supplies in the crude state.

In excluding sewage from streams it has usually been easy to develop an alternative disposal of sewage by irrigation on land or, in the case of small volumes of sewage, by subsurface irrigation through tiles, cesspools receiving clarified sewage, or some other device for accomplishing seepage through soil. Such methods are seldom a hardship financially or otherwise and no particular difficulty has been encountered in their adoption. Any more extensive works which would involve a great outlay would hardly meet with cheerful approbation at this time. The public generally in this state is not yet educated to high-grade sanitary engineering projects. The field is yet in the pioneer stage. Refinements and heavy outlays are impossible. As witness to the long painful throes some of the most noteworthy projects must pass through before reaching consummation, is the filtration of the Sacramento Water Supply. Nowhere is filtration more appropriate, yet for ten years an opposition sustained by its fear of results, cost, chemicals, or what not, has defeated efforts at raising the necessary funds. In this state, therefore, it has seemed wise to the bureau to first utilize to the fullest reasonable extent those appropriate facilities nearest at hand, leaving the necessity for elaborate works to be later proved to the public's satisfaction. There results a gradual moral preparation for higher grade methods in the future which makes for greater appreciation of constructive efforts. With the stimulus of a board backed by ample mandatory powers, however, there is bound to be a rapid improvement as thought is caused to focus on the need therefor.

That sewage irrigation, the usual disposal method of the present, can not remain satisfactory for all time in this state is, however, a foregone conclusion. Unless carefully manipulated, a sewer farm is an intense source of complaint. That same congestion of population and development of manufacturing which determined the sewage disposal policy of the East is finally bound to render the ordinary sewage farming impossible or unattractive here. It has already done so in several instances. Communities must then secure a more refined and superior effluent which can be utilized on land as irrigation water without offense, or returned to the nearest stream in a state which will not lessen its purity. One method of disposal or the other will pertain to all the inland communities. Irrigation with sewage will remain more attractive in arid sections where irrigating water is scanty than elsewhere in the

country. Just what degree of prior treatment will be essential in any particular case, whether the disposal can not be anticipated at this time. It will be different in most every instance and sewerage community. For disposal by dilution, a logical principle to adopt in determining the degree of prior treatment might be the German one, applied to its already polluted streams, that a sewage effluent shall be no worse than the stream into which it discharges. The question of proper restrictions to be imposed is bound to be a profound one, requiring ample data and analysis and clear judgment. Especially should the Bureau begin at this time, and in advance of the actual presentation of the matter for decision, the collection of pertinent information by itself and the various communities.

Cooperative Agreements with Other Bodies. There are several other state commissions whose work is more or less related to that of this bureau and with whom, therefore, there is considerable opportunity for concerted effort. Much has been done in the past year to develop this mutual cooperation. The Bureau of Immigration and Housing, through its inspectors, is continually uncovering violations of the stream pollution laws in out-of-the-way places, which are immediately reported to this bureau. The State Railroad Commission, in considering satisfactory service by the water companies coming within its jurisdiction, not infrequently faces the question of water purity. In cooperating with the State Board of Health, the commission now makes its fixing of rates contingent on the requirements of the bureau for new or modified works. The commission also requires that water companies shall hold a water permit from the State Board of Health before the case will even be considered. The Fish and Game Commission, through their deputies, will also cooperate by placing placards along dangerous streams and warning the sporting public against stream pollution. In addition, the most valuable cooperation has been arranged between the United States Forest Service and the State Board of Health limited to the National Forests. Since most of the camping grounds of the state are within the forests, no small amount of benefit results.

2. FIELD WORK.

The engineering staff spends approximately 30 per cent of its time in the field, visiting water supplies and sewage disposal plants, either on its own accord or in response to complaints or requests. Whenever possible, stream pollution studies are made in an effort to find out if the stream is dangerous, the sources of any pollution and the feasibility of abating them. All applications for permits as discussed under (1) also involve special investigations as a basis for action upon them. In practically all cases more or less elaborate reports are prepared describing the pertinent features, recommending the improvements the case warrants, and passing judgment on a contemplated project. On the soundness of the advice and recommendations so rendered rests the reputation of the bureau for real service. More and more time and thoroughness will have to be devoted to the problems as the more common ones come under consideration, and the number of investigations accordingly decreased to a point where superficiality will be

Largely on the sponsoring, recommendations or insistence of the bureau approximately twenty chlorinating plants for water sterilization have been installed in the past year and a score of others are in contemplation. Improvements to filter plants were made in two instances and minor improvements to settling basins in several others. Many simple, inexpensive improvements can be suggested to the local officials, showing plainly the need of expert advice on sanitary works, their design and operation.

Recommendations in sewage disposal works operation and rectification in disposal have been made in a score of instances. In a quite satisfactory way, most of the recommendations have been carried out. Three installations of high grade treatment works and six Imhoff tanks for preliminary sewage treatment are now under construction on the advice of the bureau, representing a considerably greater activity in improved sewage treatment than in any previous year in California and measuring in a way the activity of the bureau.

3. APPROVAL AND REVIEW OF PLANS.

Plans and specifications are required to accompany all applications for permit for new work, at the discretion of the bureau. Plans are reviewed with the view of forestalling improper or needlessly expensive installations and of determining whether the project can meet proper sanitary requirements with the greatest ease and certainty. The bureau acts solely in review on such plans and does not attempt to perform the functions of consulting engineer.

The review of plans applied in so mandatory a way that no sanitary works, either new or additions or modifications to existing structures, can be undertaken or contracted for without approval of the State Board of Health offers the most definite regulation of the kind of work which shall henceforth be installed, and should be made certain by proper amendment of the statutes at the next session of the legislature. Approval of plans for sanitary water systems should be contingent only on the ability of the works to deliver a "pure" water, and all this in an economical and certain manner. The word "pure" applied to water has been defined in the courts and includes healthfulness and various other properties concerned with aesthetics—turbidity, color, hardness, algæ, and the like, which so often make a water extremely unpotable and open to by far the greatest amount of censure.

Approval of plans for sewage disposal should be contingent on the ability of the works to treat and dispose of the sewage in a manner which will not menace health nor create odors, accomplishing these results with economy and certainty.

4. EDUCATIONAL.

Every experienced sanitarian knows the difficulty of putting many good laws into effect or getting sanitary improvements simply because the public is not prepared. It is almost an axiom that public opinion must back every material sanitary advance. Unless it has been brought to perceive the necessity, little lasting good will be accomplished. Education in sanitary matters is therefore of first importance. The bureau has devoted as much time as has been consistent with its other

duties to this very important phase of its work, through the medium of field conferences, inspection, correspondence, reports, through its printed monthly bulletins, by papers and pamphlets on special subjects, through the press, and through exhibits at appropriate gatherings.

A fruitful field of endeavor will lie in interesting officials and operators of sanitary works in occasional technical meetings to discuss the technical phases of their problems. This may be accomplished through an organization in this state known as the "League of California Municipalities" or through branches of some of the national societies devoted to sanitary engineering improvement.

5. ADVICE BY CORRESPONDENCE.

As alluded to previously, approximately 100 inquiries covering miscellaneous and minor sanitary questions reach the office every month which are disposed of by correspondence. A great many of these really require a personal inspection of local conditions, to be handled properly, and others of a special nature show plainly the need of original research work to afford correct advice. It is doubtful if advice by correspondence on sanitary engineering matters of the usual complexity and scantiness of information contained in the inquiries or subsequently brought out, should be offered. In such cases the bureau hesitates to render advice. It is hoped that a larger field staff will make possible more and more the handling of these inquiries by personal visit.

6. LABORATORY.

Through the work of the sanitary laboratory the state performs a service of incalculable value to the public. Little work of this nature would be performed at all if such a laboratory were not maintained by the state. Private laboratories, on account of the expense attached, are seldom called upon for analyses by the great majority of small communities and individuals. On the other hand, usually without persuasion, individuals and officials will avail themselves freely of the service of the State Board of Health laboratories. The sanitary laboratory, maintained by the bureau, performs only sanitary analyses of water and sewage. The service is extended on the following conditions: requests for analysis should state the reason for desiring the work done, describing the supply and its surroundings. In some cases the applicant is required to secure the approval of his request by the local health officer. Bacteriological samples are required to be submitted in sterilized bottles, shipped with ice in containers sent out by the bureau. A charge is made for expressage on this container, both ways.

The determinations are limited principally to those bearing upon the healthfulness and improvement of water supplies and the operation of sanitary works, including the bacteriological analysis of water, sanitary chemical analysis of sewage and occasionally of water, microscopic examination of water and a few of the mineral determinations yielding information essential in any future consideration of water filtration or softening, namely, turbidity, color, alkalinity, hardness and chlorine. Sanitary chemical analyses of water are often requested but are seldom

performed because of the vastly more useful results yielded by the bacteriological examination with much less effort. Most of the work of this bureau is bacteriological.

From the results of the bacteriological test and the knowledge of surroundings required to be furnished with the samples, it is possible to state with considerable definiteness whether the water supply contains human or animal filth. The determinations made include total bacterial count on gelatin and on agar and the confirmation tests for B. Coli as recommended for drinking waters on common carriers by the United States Public Health Service. On account of the long distance that samples are necessarily shipped before reaching the laboratory, the total bacterial count is seldom of significance. Chief reliance must be placed on the determination of B. Coli, a colon tract organism and significant of sewage pollution. The standard of the United States Public Health Service permits not over one colon bacillus in 50 c.c. of water. This is an extremely high standard which can be met by but few supplies in the state and the standard which the bureau has adopted, being the one in common use over most of the country, is that there shall be not more than one B. Coli in 10 c.c. of a water, to be considered safe. From the B. Coli count it is impossible to distinguish between human and cattle contamination or to state whether the pollution indicated was due to contamination of the sample by the sampler or actually existed in the supply. Both these considerations detract from the value of the work. California still has its cattle ranges on practically every watershed and often the amount of human waste is extremely insignificant. Only a sanitary inspection of the supply by an expert can indicate the seriousness of the human factor. Sampling, too, necessarily performed almost exclusively by local officials or laymen who fail to realize the sensitiveness of the test, is often affected by their hands and is therefore unreliable. In fact, so little significance can be attached to a sample collected by the average layman that, where a sample shows up badly, seldom is condemnation possible. It is highly desirable that all water sampling shall be conducted by a trained field staff which knows how to sample properly and can evaluate field findings.

The bureau has stimulated the establishment of water analysis in local laboratories at every opportunity. Such infrequent samples as the bureau makes are not to be compared in utility with the daily analysis of the supplies possible in laboratories on the spot. At least three laboratories have added water analysis this year: Eureka, Santa Barbara and San Diego.

Pressing Sanitary Engineering Problems.

Based on its observations of the past year, the following sanitary engineering problems, some being distinctly related to health, and others more especially to human comfort, are now demanding attention which to date is unavailable:

- (1) *Proper disposal* of cannery, winery, packing house, oil and industrial wastes generally.
- (2) *Examination and certification* of bottled waters as unaffected by sewage contamination. It is a serious enough reproach that bottled waters are necessary, and they should be known to be

not unhealthful in their sources as well as that they shall possess the therapeutic values claimed.

- (3) *Garbage disposal* is a problem of a magnitude only slightly less than sewage disposal. It is a specialized field for sanitary engineers, yet one which every town trustee feels competent to solve. The result is a wasteful policy or none at all.
- (4) *Examination of ice and ice supplies.* It is a well known fact that ice manufacture does not destroy all living organisms. Freezing does eliminate a great deal of the pollution but the percentage is not high enough to yield a safe ice if made from badly polluted waters. Hence the sources of water for ice manufacture should be examined and certified. Likewise the handling of ice is subject to material regulation, though this is probably a problem for local health concern.
- (5) *Swimming pool sanitation.* The public natatorium, municipally or privately owned, is becoming extremely popular, especially in the interior and warm-belt towns throughout California. Medium-sized towns like Madera, Tulare, Visalia, Selma and scores of others find that these pools are not only popular but profitable. In addition, schools, the Y. M. C. A. and similar public institutions are providing these pools as part of their attractions. A serious health problem is being thereby created due to the ease with which many diseases become transmitted through the medium of swimming pool water.

In most pools the water is purchased from the public supply at a high total cost per filling. The result is that the water is not changed with the frequency necessary to keep it clean. Where the water is heated, the item of fuel expense works toward the same end. Need of regulation is urgent.

- (6) *Oyster bed regulation.* In a good many sections, especially about San Francisco Bay, a considerable oyster industry is springing up. Native oysters and Eastern oysters transplanted for fattening are grown here. In some cases the beds have been shown to be polluted and from the habits of the oyster the bivalve is polluted to far greater extent than the water in which it lives. The problem includes long-time pollution studies to learn what beds are suitable for the industry, what beds are not, the source of the pollution and an analysis of cost, and the like, to determine whether the industry is worth the cost of protecting the beds from pollution.
- (7) *Summer resort sanitation.* Among the peculiarities on which the fame of California rests is that it is the land of sunshine and of the great out-of-doors. Nowhere are the picnic grounds, camping grounds and summer resorts in such abundance as here. And the devotees of Nature are increasing at a most rapid rate since the advent of the automobile. This is a great public industry and an asset of great worth to California and Californians. Resorts are springing up like mushrooms and with as little regulation. Such sanitary features as have been established have been extremely incidental, resulting often in such pollution of streams that the country around becomes not only

decidedly dangerous to health but detractive to enjoyable vacationing. Regulation of both sewage disposal and water supply is urged in these pleasure places. Calamity and fear of vacationing in the mountains will surely result if sanitation of these places is not put on a high plane.

- (8) *Operation of sanitary works.* As stated previously, faithful and intelligent operation is absolutely essential to the obtaining of results in water purification and sewage treatment works. In California the number of promising operators of these works can easily be counted on the fingers. In practically all plants examined the operation is either so wasteful in energy and outlay, or so insufficient, that the works do not perform the functions intended and are used as an argument against further outlay. The obvious remedy of this situation lies with the bureau and can be brought about only by actually devoting one or more days to the operation of each plant at frequent intervals, together with legislation compelling proper operation.
- (9) *Inspection on construction.* With its present facilities the bureau has practically no connection with plans once approved until faulty results from the completed structure calls attention thereto. In the period of construction it is almost inevitable that some unforeseen circumstance will arise which makes it convenient to alter the plan of works, often in vital details. It often happens that the change, made by those ignorant of the sanitary workings of the structure, defeats its whole purpose. Reliance must now be placed on the honesty of those in charge to get approval of the bureau before making the desired changes. Too often this trust is misplaced. The remedy will lie in occasional inspection by the bureau while the work is in progress.
- (10) *Sampling of water supplies.* The unreliability of the sampling of water supplies and the scantiness of information supplied with the sample depreciates the value of the analytical work, as alluded to previously. Yet the results to be obtained are of untold value and wholly indispensable in the improvement of the supplies. Not until the sampling is done by a regular staff specially trained in water sampling and sanitary surveys will the laboratory yield its maximum benefit.

The above problems, all of great public concern, are practically all of such a nature that only sanitary engineering specialists can do them justice. As the problems magnify in size and number with congestion of population and increased industry, the organization to combat them must grow accordingly. The present staff of the bureau is utterly inadequate to cope with the work now undertaken. It can not even respond to all requests for advice and assistance, much less ferret out really serious violations of sanitary laws of great public concern or to discover opportunities where its advice can be applied profitably. To be truly utilitarian, the bureau should do more than take action when its services are sought; it should carry its usefulness widely and promote improved sanitation aggressively. And to that end it should be equipped with adequate staff and funds.

APPENDIX "A"—WATER SUPPLIES.

I. Action on Permits.

Antioch. Application to continue to supply water from the San Joaquin River. Action: temporary permit granted pending installation of efficient chlorination.

Auburn (Pacific Gas and Electric Company). Application: to continue to supply water from existing mountain sources. Action: temporary permit granted pending installation of efficient chlorination.

Benicia (Benicia Water Company). Application: to continue to supply water from Lake Herman and Paddy reservoirs. Action: permit granted to supply water after its chlorination.

Dunsmuir (California-Oregon Power Company). Application: to continue to supply water from Mossbrae Springs, Bear Creek and East Side. Action: permit granted.

Hearldsburg. Application: to continue to supply water from shallow wells near Russian River. Action: none.

Kennett (Kennett Water Company). Application: to continue to supply water from Big Backbone Creek. Action: temporary permit pending chlorination of the supply.

Los Banos (West San Joaquin Valley Water Company). Application: to continue to supply water from San Joaquin River via San Joaquin-Kings River Canal and Irrigation Company canal. Action: temporary permit granted, pending chlorination and construction of filtration plant.

National City (Sweetwater Water Company). Application: to continue supply water from Sweetwater River and Reservoir. Action: temporary permit granted pending accumulation of data showing supply to be safe.

Pittsburg (Black Diamond Water Company). Application: to continue to supply water from the San Joaquin River after filtration. Action: none.

Redding (Northern California Power Company). Application: to continue the supply from the Sacramento River. Action: temporary permit granted pending chlorination and sedimentation basin improvements.

San Diego. Application: to continue to supply water from Otay and Moreno reservoirs and San Diego River, following filtration of former two sources. Action: none.

San Luis Obispo. Application: to continue supply from existing spring and creek sources. Action: none.

Santa Barbara. Application: to continue to supply water from Mission Tunnel, Cold Springs Tunnel and de la Guerra wells. Action: temporary permit granted pending chlorination of de la Guerra wells.

Santa Rosa. Application: to continue supply from wells. Action: none.

(St. Helena Water Company). To continue supply from
Action: none.

ah Water Improvement Company). Application: to continue supply from Orr Creek, Gibson Creek and two wells near Russian River.
Action: none.

II. Plans Approved.

No plans have been submitted for approval. Such improvements as have been made with the cognizance of the bureau have been of such a nature as to require no plans. The principal improvements have been the installation of chlorination plants, the following having been reported to the bureau informally:

Antioch	National City
Auburn	(Sweetwater Water Company)
Benicia	Oakland
El Centro	Pasadena
Eureka	Pittsburg
La Mesa and East San Diego	Redding
(Cuyamaca Water Company)	Sacramento
Los Angeles	San Diego
Merced Falls	San Jose
Monterey (Monterey	San Luis Obispo
Water Works)	Santa Barbara

III. Investigations, Inspections and Reports.

Antioch. Inspected August 18, 1915, and February 2, 1916. The supply is municipally owned and is pumped from the San Joaquin River opposite the upper end of the city, chlorinated, passed through pressure filters direct to the distributing system on which is an elevated steel tank to equalize supply and demand. Aluminum sulphate added as a coagulant seems to be effective in making complete clarification possible, if used in sufficient amount. Prior to chlorination, urged by the bureau, the bacterial results were very insufficient.

Auburn. Inspected November 3, 1915, March 22, and May 16, 1916. The supply is owned and distributed by the Pacific Gas and Electric Company. The supply is derived from various impounded high Sierra Mountain sources and is diverted from irrigation and power ditches in which gross pollution occurs to settling and service reservoirs near town. The water is extremely turbid at times, due to placer mining and natural wash, and unsafe continuously. Ditch revision is planned to remedy some of the turbid conditions but chlorination is an absolute necessity to overcome the danger from sewage pollution. On the recommendation of the bureau this has been provided.

Benicia. Inspected December 7, 1915. The supply is owned by the Benicia Water Company, derived from various dangerous surface sources, impounded. The bureau required chlorination of the supply and great care in watershed patrol. The measures were adopted.

Calxico. Inspected April 13, 1916. The supply is municipally owned and is derived from irrigating ditches heading at the Colorado River. Works consist of a slow sand filter cleaned by a Blaisdell sand washer. The ditch water is extremely turbid and dangerous all the year. In both respects the effluent of the plant is satisfactory. Whether this type of works would apply to ordinary turbid waters is yet to be demonstrated.

Calipatria. Inspected May 28, 1916. The water supply is furnished by the Calipatria Town and Farms Company and is derived from the

irrigating ditches, the supply coming originally from the Colorado River. It is originally very muddy and polluted, but is treated by plain sedimentation in large settling basins which are thrown out of service and cleaned by hand every few months. The settled water is pumped to an elevated steel tower on the distributing system. The settling basins hold about one week's supply and are operated on the fill-and-draw plan. Investigation revealed that clarification by this method was extremely variable and ineffective and that pollution is at all times present. Recommendations for improvement were as follows: (1) more frequent cleaning of settling basins, approximately eight times per year; (2) remodeling settling basins by addition of baffles to prevent short circuits of unsettled water to the outlet; (3) the use of chemical precipitation, using aluminum sulphate and lime or iron sulphate and lime if baffling is insufficient to produce satisfactory clarification; (4) disinfection with calcium hypochlorite or liquid chlorine to remove pollution; (5) fencing the reservoirs to prevent blowing in of leaves, papers and the like and to prevent trespass by persons who might pollute the water in the basins. The basins and system have since been thoroughly cleaned out and the basins baffled. According to reports, the results of the improvements are so marked as to make unnecessary the use of chemical precipitation at this time.

Calistoga. Inspected March 10, 1916. The water supply is furnished by the Calistoga Water Company and is obtained from two spring-fed mountain streams and, in case of emergency, from a drilled well. One of the stream supplies is subject to objectionable pollution. Posting of warnings against pollution on the watershed and chlorination has been advised.

Cloverdale. Inspected February 23, 1916. The supply is furnished municipally, being derived from two wells dug in the gravel deposits bordering the Russian River. The wells are nothing more than pits about 20 feet deep walled with concrete around the top to exclude flood waters. It is planned to build new reinforced concrete walls in one of the wells. This has been emphasized as a particularly necessary improvement.

Colfax. Inspected May 15, 1916. Similar to Auburn supply.

Colton. Inspected May 25, 1916. The water is furnished from a plant owned by the city, comprising four semiartesian wells, one of which is not properly protected against surface contamination. Protective improvements have been advised.

Dunsmuir. Inspected April 3, 1916. The water system is owned by the California-Oregon Power Company. The supply as gradually developed is derived from Shasta Springs, Northbrae Falls, Bear Creek, and the East Side supply. Analyses indicate that the water is safe.

El Centro. Inspected January 14 and April 13, 1916. Water supply is municipally owned and is derived from irrigating ditches heading at the Colorado River. The water is extremely turbid and grossly polluted. Treatment consists of sedimentation in a battery of excavated settling basins, following which it is pumped into an elevated steel tank on the distributing system. As the result of analyses showing pollution, the city has installed chlorination works.

Escondido. Inspected May 26, 1916. The water supply is both privately and municipally owned. The private supply is furnished by the Mutual Water Company with the San Luis Rey River as source, the water being carried to town in open flumes. The water is often muddy and subject to pollution. Chlorination as a minimum treatment has been required. The municipal supply comes from seventeen wells about 60 feet deep. No analyses are at hand to show the degree of safety.

Eureka. The supply is municipally owned and is derived from the Elk River. The water is highly colored, at times turbid and low in alkalinity, and always polluted by the lumber camps on the watershed. Treatment was formerly limited to filtration in pressure filters. On the advice of the bureau, a coagulating basin has been constructed and provision made for adding aluminum sulphate and soda ash at entrance to the basin. Liquid chlorine is applied just before filtration. The filtered water is pumped to large wood-stave clear-water storage tanks near town. The keenest interest has been stimulated in the management of the waterworks.

Firebaugh. Inspected June 8, 1916. The supply is furnished by the Miller & Lux Company and is derived from the San Joaquin River. Analyses indicate considerable pollution. Much of this is probably of cattle origin.

Folsom. Inspected April 17, 1916. The supply is furnished by the Natomas Consolidated Company and is ditched from the American River to a concrete-lined reservoir holding two or three days supply from which the water flows by gravity to the town. There are no analyses.

Folsom Prison. Inspected June 9, 1916. The main water supply is derived from the American River by pumpage directly into the system at the upper end of which is an equalizing reservoir for continuous service. In addition, considerable drinking water was being obtained from a spring on the premises. Analyses indicated that the spring water was polluted and its use has been abandoned. Pollution was also found in the American River supply and emergency hypochlorite treatment has been installed on the advice of the bureau.

Grass Valley. Inspected March 24, 1916. The supply is purchased in bulk from the Pacific Gas and Electric Company and is municipally distributed. The supply is obtained principally from Lake Spaulding and passes through about 30 miles of open power ditches before reaching the city. The supply is extremely muddy, especially during the winter. It is settled in a series of shallow excavated reservoirs; the treatment is not at all effective and considerable complaint has resulted. The bureau has recommended the construction of a modern rapid sand-filter plant, utilizing the present basins for plain sedimentation and coagulation purposes, rather than piping through certain sections as asked by the city.

Hayward (Independence Grammar School). Inspected September 13, 1915. Preliminary analyses of the water, made following a case of typhoid at the school, indicated the presence of pollution and the use of the well was discontinued at considerable inconvenience to the pupils. The country rock is fissured sandstone and pollution was sus-

perated as traveling up and down through the crevices. Subsequent analyses, however, did show that this was not the case and that the trouble was due to insufficient protection against surface wash at the top of the well. A number of improvements in the way of impervious and higher curbing and sealing over the well have been advised and carried out.

Henrieville. Inspected September 26, 1915, and February 24, April 25, and June 6, 1916. The water supply is municipally owned and is derived by pumpage from large concrete cisterns sunk to ground water level along the banks of the Russian River. Indications are that the supply is seepage water from the Russian River. Following a typhoid epidemic about two years ago, an emergency installation for hypochlorite treatment was put in. The above repeated inspections showed that results were extremely discontinuous and the bureau urged the substitution of a liquid chlorine installation. After considerable persuasion the city trustees have acted upon this suggestion.

Hemet. Inspected June 2, 1916. The supply is furnished by the Lake Hemet Water Company with the San Jacinto River as source, being stored in a large reservoir holding over three billion gallons. Numerous sources of pollution exist on the watershed. Algae troubles in the reservoir are frequent. Chlorination has been recommended if it is found by analyses that the storage is ineffective and copper sulphate treatment has been suggested as an algæcide.

Holtsville. Inspected April 13, 1916. The water supply is municipally owned and is derived from irrigating ditches heading at the Colorado River. The water is highly turbid and polluted. Treatment consists in the use of aluminum sulphate and lime, following which the water is settled in a square concrete basin provided with numerous drain lines over its bottom for ease in cleaning while the tank is in service. The results of treatment are very erratic, due to the unscientific way in which the chemical is handled. The bureau has made preliminary studies which show that iron sulphate is preferable to aluminum sulphate in cost for equal results and has given the dosage of chemicals suited to the water delivered at that time. The dosage, however, should change as the quality of the water changes. There is opportunity for much assistance to the town through the laboratory of the bureau.

Imperial. Inspected January 14, 1916. The supply is municipally owned and is derived from irrigating ditches heading up the Colorado River. It is both turbid and polluted. Treatment consists in plain sedimentation in excavated basins holding two or three days supply. Cleaning of the settled sludge is accomplished manually from time to time. Local officials have displayed no interest in getting improvements.

Indio. Inspected May 26, 1916. The water is supplied by a private individual from a deep well, the upper twenty feet of which is of wide diameter and serves as a pump pit. The floods of the past winter contaminated the pit, apparently causing considerable typhoid. On the advice of the bureau, emergency hypochloriting was maintained for 1 week. Sealing the top of the steel casing and proper pit location have been recommended.

Kennett. Inspected March 31, 1916. The water supply is owned by the Kennett Water Company and is derived from a reservoir on Big Backbone Creek and taken to town through an open ditch. At times following rains when the water is turbid it is filtered through a pressure filter. Installation of liquid chlorine apparatus has been recommended. The company has preferred to put in an emergency hypochloriting installation. Disinfection is being obtained, but apparently considerable taste results.

Lompoc. Inspected June 6, 1916. The supply is municipally owned and is derived from two large springs and from Miguelito Creek, a small, spring-fed stream about five miles from town. The creek supply is used only in summer. Danger of contamination appears to be slight but can be determined with definiteness only by analyses during the critical season.

Loomis. Similar to Auburn supply. Supplied jointly with Rocklin.

Los Banos. Inspected October 4, 1915, April 3, 24, and June 8, 1916. The water system is owned by the West San Joaquin Valley Water Company, the supply being derived from the main irrigation canal of the San Joaquin-Kings River Canal and Irrigation Company heading at the San Joaquin River, 34 miles away. The canal passes through large pasture fields, and in addition to pollution on the watershed of the San Joaquin River, contains cattle pollution. The water is extremely turbid at times and is never satisfactorily clear. During the summer and fall algae growths impart a very objectionable taste to the water. The only treatment provided at present is makeshift, consisting of passage through a small basin filled with coarse stone. The bureau has recommended construction of a modern rapid sand filter, together with chlorination.

Los Gatos. Inspected October 7, 1915. The system and supply are owned by the San Jose Water Company, developing certain sources on the watershed of Los Gatos Creek. Several impounding reservoirs are constructed at the upper ends of the best water-producing tributaries, the flow being released into the natural channels, being finally diverted from Los Gatos Creek through a flume to a point about three miles above Los Gatos. The careful manipulation of the system affords a water quite satisfactory in appearance, the first freshets being allowed to go to waste. Secondary pollution, however, occurs in the lower water courses and the company on its own volition has chlorinated the supply. Laboratory control is also maintained by the company. From our brief inspections of waterworks over the state, this is an exceptionally well managed surface water supply.

Mendocino State Hospital. Inspected April 27, 1916. This supply is derived from a mountain stream and impounded in two reservoirs; one of the reservoirs was only recently completed and the inspection was made primarily to determine whether it would be desirable to chlorinate the water used, due to possible contamination produced by the construction camp. It has been recommended that a temporary hypochlorite plant be installed to dose the incoming water until the camps on its banks can be abandoned, possibly sixty days hence.

Menlo Park. Inspected December 17, 1915. The supply is owned by the Bear Gulch Water Company and is derived from surface sources

on fairly inaccessible watersheds and then stored in a quite large impounding reservoir. Samples indicate that the supply as delivered to consumers is safe, though during the summer time the water is considerably affected by algæ. Copper sulphating the reservoir will be the logical remedy.

Muir Woods. Inspected May 28 and June 3, 1916. Reference of a case suspected to have contracted typhoid fever from drinking the stream water flowing through the woods, led to the above inspections and sampling. It was found that the waters in the park are extremely dangerous, and the matter has been taken up with the United States Department of the Interior to see if a safe water can not be piped to the favorite picnic grounds.

Napa. Inspected March 9 and April 3, 1916. The supply is owned by the Napa City Water Company. Water is pumped at two different stations from wells. The supply was examined in connection with an outbreak of dysentery. Inspection and analyses indicate a supply of sanitary quality.

National City. Inspected January 16, 1916. The supply is owned by the Sweetwater Water Company, developing surface sources which are stored in Sweetwater Reservoir, a lake of very great storage capacity. The same distributing system supplies water for domestic use and for irrigation. The watershed is very considerably inhabited and opportunity for pollution, especially during the first freshets, is easily evident in spite of the tremendous storage capacity of the reservoir. The bureau recommended frequent analyses to determine whether chlorination was necessary. The water company, however, has preferred to install chlorination, treating practically the entire supply.

Newcastle. Supply similar to Auburn.

Oceanside. Inspected April 11, 1916. The supply is municipally owned and is pumped from wells in the bed of the San Luis Rey River to distributing reservoirs on the hills above the city. During the January storms the river tore the suction intake away and polluted the wells. For sometime thereafter water was drawn from the river direct, chloride of lime being hastily applied at the reservoir in a bag, a most commendable emergency measure, as the river is decidedly unsafe. In view of the likelihood for a repetition of the same disaster to such river bottom wells, the recommendation has been made for a more permanent standby hypochloriting installation.

Paso Robles. Inspected January 6 and May 13, 1916. The supply is owned by the San Joaquin Light and Power Company and is pumped from a well 50 feet deep near the banks of the Salinas River. Analyses indicate that the water is safe. Investigation was made on account of a dysentery epidemic, the first suspicion being attached to the water supply.

Redding. Inspected March 29, 1916. The supply is furnished by the Redding Water Company and is derived from the upper Sacramento River, being pumped to a small impounding reservoir above the city. A recent sanitary survey of the watershed shows numerous sewer openings into the river and thousands of vacationists on the watershed. The supply is confirmed by analyses. The bureau has

recommended chlorination and improvements by baffling in the reservoir and application of chemicals for better clarification, as the minimum requirement which will prove satisfactory at this time. Chlorination has been installed in conformity with the above requirements and basin improvements will be made when the heavy draft of the irrigation season subsides.

Redlands. Inspected May 26, 1916. The supply is municipally owned and is derived by pumping from a series of twelve wells at four different pumping stations. Wells are deep and apparently well protected against pollution.

Redondo Beach. Inspected January 20, 1916. The water supply is owned by the Redondo Water Company and is obtained from wells said to be about 300 feet deep.

Rio Vista. Inspected March 31, 1916. The water supply is municipally owned and is derived by pumping from two wells near the Sacramento River 147 feet deep. Analyses show the water to be safe, though somewhat affected by salinity. This source has displaced the Sacramento River supply.

Rocklin. See Loomis.

San Diego. Inspected January 15, March 18 and May 31, 1916. The city supply is municipally owned. Until the sweeping away of the Lower Otay Dam in the floods of the past winter, the bulk of the supply was obtained from that reservoir, being then filtered through pressure filters and chlorinated. Following the catastrophe, the bulk of the supply was derived by pumping from wells in the bottom of San Diego River. As soon as roads became passable, the chlorination plant was moved from the filtration plant to treat this very dangerous supply. Work has proceeded in developing another supply from Morena Reservoir and Cottonwood Creek, which sources have now been connected to the filter plant in the same way as the former supply.

San Fernando. Inspected May 20, 1916. The water is supplied by two companies, the Mission Land Company obtaining water from four wells fully protected against surface wash, and the Consolidated Securities Company obtaining water from wells and from Pacoima Canyon. Except for the wells of the latter company, the supplies are contaminated and inadequate. Chlorination has been recommended to correct the former. The city is considering the installation of a municipal waterworks.

San Jacinto. Inspected June 1, 1916. The water supply is owned by the city and is derived from a drilled well 150 feet deep. Recent floods damaged the plant and it is planned soon to abandon this well for another drilled on slightly higher ground, a few hundred feet away. Sanitary surroundings seem to be satisfactory.

San Jose. Inspected September 15, 1915. Supplied by the San Jose Water Company. Same supply as Los Gatos.

San Luis Obispo. Inspected January 7 and February 21, 1916. Supply is municipally owned and is derived from various springs located on inaccessible watersheds, delivered to small excavated service reservoirs located near town. In common with most towns in the vicinity, water famines threaten practically every summer and reliance

must be placed on utilizing the stream flow in San Luis Obispo Creek and tributaries during that season. The spring supplies appear to be of good sanitary quality though extremely hard. The creek supplies on the other hand are extremely dangerous and the bureau has recommended chlorination as standby treatment when the creek supply must be drawn upon. Chlorination has been installed.

San Miguel. Inspected January 6, 1916. The supply is furnished by the San Miguel Water Company and is pumped from a dug well 60 feet deep in the center of town to a service reservoir on the hills above. Though there are several cesspools and privies within 60 feet of the well, analyses indicate that none of the pollution affects the supply.

Santa Barbara. Inspected February 21 to 25 and June 6, 1916. The water system is owned by the city, the supply being derived from three main sources, Cold Springs Tunnel, Mission Tunnel and the de la Guerra wells, there being several service reservoirs about the city to afford continuous supply. Of these various sources, the only one which can be said to be truly safe is the Cold Springs Tunnel supply. The de la Guerra wells are subject to easy pollution from filthy sloughs through rusted casings and the Mission Tunnel may be polluted by the passage of workmen through the tunnel, the only easy means of access to the country beyond the Santa Ynez Range. The water supplies are very hard. It is planned to develop an impounded supply on the Santa Ynez River, the foundation for a dam being already started. After a careful inspection the bureau ordered chlorination of the de la Guerra wells, urged chlorination of the Mission Tunnel supply and suggested early sanitary patrol of the Santa Ynez watershed, and a careful policy of medical examination of workmen on water supply development there, as well as of miners who may be permitted to develop the cinnabar resources on the watershed.

Santa Monica. Inspected January 19, 1916. Water is supplied by four different companies, as follows: The Santa Monica Water Company and Irwin Heights Water Company supply water within Santa Monica only. The City Water Company and the Ocean Park Water Company supply water within Santa Monica and also to parts of Venice which lies just to the south. These supplies are all obtained from wells said to range from 200 to 300 feet in depth.

Santa Paula. Inspected June 5, 1916. Water supply is furnished by the Santa Paula Water Company, diverting its supply from Santa Paula Creek through a pipe line leading to a three-million gallon reservoir, being an earth excavation lined with concrete which supplies the distributing system. The watershed is subject to numerous sources of pollution by residents, public roads, summer resorts, and the like. Chlorination has been recommended.

Santa Rosa. Inspected July 6, 1916. The water supply of Santa Rosa is furnished by two systems, one owned by the city and the other by the Santa Rosa Water Company. The city supply is derived entirely from two deep drilled wells and a tunnel about two miles from the city. Improvements now under way will eliminate existing dangers of contamination. The water company's supplies are derived from

Santa Rosa Creek and from a large spring, the water being pumped from the latter. Both these sources are subject to contamination. Chlorination has been advised to eliminate the dangers.

Sonoma. Inspected February 21, 1916. The water supply is furnished by the Sonoma City Water Company and is derived from large springs at the edge of town. Inspection indicates satisfactory purity.

St. Helena. Inspected March 10 and May 4, 1916. The supply is furnished by the St. Helena Water Company and is diverted from York Creek in the hills near the city and is stored in an impounding reservoir of considerable capacity, just above town. The stream is subject to considerable pollution and algæ growths are prevalent during the summer. Chlorination and algæcide treatment with copper sulphate have been recommended. Both improvements have been put into practice successfully.

Truckee. Inspected June 10, 1916. The supply is drawn from several sources. The Shaeffer Water Company supplies about 300 persons, taking the supply from a spring. The McGlashan Water Company supplying about 400 people, obtains its supply from a tunnel and by pumpage from the Truckee River. The Southern Pacific Railway gets its supply from Trout Creek. The Buckman supply is furnished to but ten or twelve families. In addition, there are several private supplies drawn mostly from springs. Little is known of these supplies except that on the Trout Creek system there is annually more or less typhoid. The Truckee River is also known to be dangerously polluted.

Ukiah. Inspected February 23 and April 27, 1916. The water is supplied by the Ukiah Water and Improvement Company and is derived from Fisher Creek and from wells dug in gravel deposits bordering the Russian River. Recommendations were made for protecting the wells from inflow of flood waters. Aside from possible pollution from a fish hatchery, Fisher Creek appears to be a reasonably safe source of supply.

APPENDIX "B"—SEWAGE DISPOSAL.

I. Action on Permits.

Alhambra. Application: to dispose of sprinkling filter effluent of tri-city project—Alhambra, Pasadena and South Pasadena—onto city sewer farm on Repetto Rancho or into Los Angeles River during winter. Action: permit granted.

Beverly Hills (Rodeo Land and Water Company). Application: to discharge sewage into Benedict Canyon Wash. Action: permit granted on provision that the sewage be further treated in a sprinkling filter of satisfactory design prior to discharge.

Calistoga. Application: to dispose of sewage onto a four-acre sewer farm in summer and into Napa Creek in winter. Action: temporary permit granted pending demonstration of satisfactory operation of farm and effect on creek.

Calwa (Santa Fe Railway Company). Application: to discharge sewage into wells about 300 feet deep, reaching to water-bearing gravel. Action: permit granted with the provision that sewage be treated to high degree of stability, clarification and sterility.

Colma (J. H. Dennis). Application: to dispose of sewage of private system by subirrigation in an extension of Ninetieth street, following clarification in an Imhoff tank. Action: permit granted.

Compton. Application: to discharge contact bed effluent into Compton Creek. Action: permit granted.

Eagle Rock (Strickland Home for Boys). Application: to dispose of sewage by subirrigation. Action: permit granted.

El Centro. Application: jointly with Imperial, to discharge Imhoff tank effluent into New River. Action: permit granted.

Holtville. Application: to dispose of septic tank effluent onto existing sewer farm. Action: temporary permit granted with the provision that the septic tank be modified along the two-story principle.

Imperial. See El Centro.

Pasadena. See Alhambra.

Paso Robles. Application: to discharge crude sewage into Salinas River for the year 1916. Action: temporary permit granted.

Pittsburg. Application: to discharge septic tank effluent from a small subdivision into New York Slough. Action: permit granted.

Pleasanton (Hacienda—Hearst Ranch). Application: to dispose of sewage by subirrigation adjacent to Arroyo de la Laguna. Action: permit granted.

Redding. Application: to dispose of sewage onto Bassett farm. Action: permit granted.

Reedley. Application: to discharge sewage into Kings River. Action: permit granted with the provision that the effluent be further oxidized in a modern sprinkling filter and that a low river stage disposal be on sand bars along the river, or chlorinated.

Riverside. Application: to dispose of sewage on 500-acre sewer farm adjacent to the River. Action: permit granted.

Sacramento. Application: to discharge screened effluent of so-called annexed territory into Sacramento River. Action: permit granted.

San Bruno (Belle Air Addition). Application: to dispose of sewage by subirrigation along San Francisco Bay shore. Action: permit granted.

Santa Barbara. Application: to discharge sewage into Santa Barbara Channel. Action: temporary permit granted with the provision that beach nuisance and pollution of bathing waters be avoided.

Sebastopol. Application: to discharge septic tank effluent into adjacent lagoon. Action: permit granted.

Sonoma. Application: to dispose of septic tank effluent on the city sewer farm. Action: temporary permit granted pending demonstration of satisfactory manipulation of farm.

South Pasadena. See Alhambra.

St. Helena. Application: to discharge septic tank effluent into Napa Creek. Action: permit denied; permit granted to dispose of septic tank effluent onto city sewer farm.

Walnut Grove (Alex. P. Brown). Application: to discharge septic tank effluent of Oriental quarters into the Sacramento River. Action: permit granted.

Willows. Application: to dispose of sewage on city sewer farm. Action: temporary permit granted pending installation of works to reduce nuisance to the vicinity.

Winters. Application: to discharge sewage into Putah Creek. Action: temporary permit for sixty days to permit change to disposal elsewhere.

II. Plans Approved.

Auburn. Plans for Imhoff tank.

Beverly Hills (Rodeo Land and Water Company). Plans for sprinkling filter.

Calwa (Santa Fe Railway). Plans for Imhoff tank, contact beds and chlorination works.

Colma. Plans for Imhoff tank and subirrigation system.

Compton. Plans for Imhoff tank and contact beds.

El Centro. Plans for Imhoff tanks.

Imperial. See El Centro.

Lompoc. Plans for Imhoff tank.

Pittsburg. Plans for septic tank.

Reedley. Plans for sprinkling filter and final settling tank.

Sacramento. Plans for sewage screens.

San Bruno (Belle Air Addition). Plans for septic tank and sub-irrigation system.

III. Inspections, Investigations and Reports.

Alhambra. Inspected May 16, 1916. The city has no sewage disposal at present. Definite plans have been prepared for handling the sewage of Pasadena, South Pasadena and Alhambra jointly on a sewer farm, following treatment by an Imhoff tank and sprinkling filter of the highest type or by the activated sludge method. At the present time the project is blocked by the incorporating of the community of New Montgomery, purposely to defeat the project. There is possibility that the incorporation may not be sound on account of the previous voting by the sewer farm and vicinity to annex to Alhambra.

Alviso. Inspected December 28, 1915. The clam beds in Alviso Slough were investigated for pollution and condemned.

Antioch. Inspected August 18, 1915. The sewage is discharged directly into the San Joaquin River opposite the city within one block of the waterworks intake, without treatment.

Anaheim. Inspected October 16, 1915. The sewage is clarified in an Imhoff tank of the earliest design in this state, being tightly covered except for manholes. In spite of the difficulty in operation, the tank is well managed and normally produces an excellent effluent which is disposed of by irrigation on a citrus farm.

Beverly Hills (Rodeo Land and Water Company). Inspected October 13, 1915, and May 25, 1916. The sewage was formerly disposed of after settling in a septic tank, into a dry wash which later flows by Sawtelle where it created considerable nuisance. On the bureau's recommendation, a pumping station and sprinkling filter have been constructed which are yielding a very satisfactory effluent, being clear and odorless.

Calistoga. Inspected March 10 and May 5, 1916. The city recently completed a sewer system, the effluent passing through septic tanks, being then disposed of into Napa Creek. The bureau has required discontinuing this method of disposal, suggesting utilization of a five-acre municipal sewer farm. The change has been made.

Calwa (Santa Fe Railway Shops). Inspected November 17, 1915, and April 6, 1916. Sewage from the shops and car-washing platforms was formerly disposed of untreated except for sedimentation in large open ponds, by pumpage into three deep wells, there being no other outlet for the sewage than into the deep strata. Salt tests and bacteriological studies proved conclusively that this practice was polluting the main water supply well, reaching to the same depth, about 1,100 feet distant. On the bureau's recommendation, a small but most complete treatment works has been put in, consisting of an Imhoff tank, pumping station, a bottom-fill contact bed, an automatic chlorination plant, utilizing the open basins as final settling chambers.

Carpinteria. Inspected February 24, 1916. The community is unsewered. Certain sections desiring to utilize a land drainage system for the purpose of disposal, brought the matter up for approval of this board. To prevent nuisance in the drainage system during the summer months, the bureau deemed it advisable to require the installation of septic tanks and subsurface distributors so that the only sewage reaching the drains will be seepage water.

Castella (Crag View Hotel). Inspected April 3, 1916. This hotel formerly disposed of its sewage directly into the Sacramento River, polluting the water supply of Redding. On the bureau's recommendation a septic tank and subirrigating system have been installed.

Chico. Inspected April 24 and June 4, 1916. The sewage is disposed of by irrigation on alfalfa fields, following clarification in an Imhoff tank. Maloperation of the tank is resulting in an inferior effluent. Recommendations have been made for material improvements.

Chino. Inspected June 1, 1916. The city is planning to install a sewer system with an outlet to an Imhoff tank, the effluent of which will be disposed of on a ten-acre tract of sandy land to be thoroughly underdrained into Chino Creek. Complaints of anticipated jeopardy of water supply have been investigated and found to be without proper basis, in the opinion of the bureau.

Cloverdale. Inspected February 23 and April 7, 1916. The sewage is disposed of by irrigation without treatment on privately owned land planted to grapevines and beans bordering the Russian River. It is reported that sewage reaches the river during the rainy season.

College Park. Inspected September 16 and December 19, 1915. The city sewage formerly passed through a septic tank to a makeshift contact bed, thence into Guadalupe Creek. The stench surrounding the works was absolutely unbearable. On the bureau's recommendation, a successful effort at voting bonds to connect the system with that of San Jose has made possible the abandonment of the works.

Colma. Inspected February 8, 1916. Most of the community is unsewered. A private system, serving about 150 people, was put in this year, the sewage being clarified in an Imhoff tank and disposed of by subirrigation, on the advice of the bureau.

Colton. Inspected May 25, 1916. The sewage is disposed of without treatment on very sandy soil, bordering Santa Ana River. At times there is overflow to the river direct. Nuisances are not complained of.

Compton. Inspected October 17, 1915. A new sewer system has recently been completed, the sewage being treated in a works consisting of an Imhoff tank, a pumping station and bottom-filled contact beds, the final effluent being disposed of into Compton Creek.

Coronado. Inspected May 29, 1916. The sewage of the town is disposed of through a main outfall sewer discharging into San Diego Bay about 700 feet from shore. The sewer is submerged and the rise and fall of the tide results in a backward and forward flow in the sewer periodically forcing out accumulations of air in the pipe when the tide rises, resulting in nuisance. Recommendations have been made by the bureau for the collection of more working data to be used in preparing plans for a receiving basin operated by gravity or with pumps to prevent the backing up of sewage at high tide.

Davis (University Hotel). Inspected February 5, 1916. There is no sewer system in the town and this hotel attempted to get rid of the sewage by sinking a sewage well to gravel. The work was stopped by

the bureau on account of the likelihood of the pollution of water-supply wells in the vicinity and recommendations made for alternative disposal by a subsurface tile system of distribution.

Dunsmuir. Inspected April 3, 1916. This large community has no sewer system. A few individual sewers discharge directly into the Sacramento River. The city has in contemplation the voting of bonds to put in a comprehensive sewer system.

Eagle Rock (Strickland Home for Boys). Inspected January 20, 1916. This home, intending to open, sought the advice of the bureau on sanitary disposal of its sewage. Recommendations for pumpage, tankage and subirrigation were made.

El Centro. A complete sewer system has recently been completed, receiving also the sewage of Imperial, three miles distant. The sewage is clarified in Imhoff tanks, approved by the bureau, and the effluent disposed of into New River, a saline stream.

Escondido. Inspected May 26, 1916. The sewage is discharged into a small creek south of town after clarification in a septic tank built eight years ago. Indications are that the tank, which has never been cleaned, is filled with solids. Disposal into the gravel creek bottom seems to be satisfactory.

Firebaugh. Inspected June 8, 1916. This community, recently incorporated, has no sewer system. Disposal of an effluent would be extremely difficult on account of the adobe nature of the surrounding soil. Accordingly the bureau has discouraged plans for a comprehensive system, advising continued reliance on privies kept sanitary, or in individual cesspools in certain cases.

Folsom. Inspected April 17, 1916. This unincorporated community, desiring a sewerage system, has so far proceeded as to have formed a Sanitary District. A report was rendered by the bureau on the feasibility of sewerage and disposal of sewage without polluting the American River.

Folsom Prison. Inspected June 9, 1916. Sewage of the prison is pumped from large sumps, functioning as sedimentation tanks, onto various forms of garden truck. The bureau has recommended that greater care be exercised in the future to the end the sewage shall water only vegetables which are eaten cooked and which do not come in contact with vegetables eaten raw in the course of handling.

Fowler. Inspected November 17, 1915. The sewage is clarified in an Imhoff tank of early design, the effluent being disposed of throughout the year by broad irrigation on alfalfa fields. Except for prolific mosquito breeding, the disposal seems to be satisfactory.

Fresno. Inspected November 18, 1915. The sewage is passed through a battery of septic tanks, the effluent being disposed of by irrigation on alfalfa fields. Extreme unloading of the tanks causes much foulness in the ditches.

Fullerton. Inspected October 16, 1915. The sewage is clarified in an Imhoff tank of early design yielding a well clarified effluent which has been disposed of by broad irrigation. The worst criticism of the sewer farm is its water-logged nature. Eventually drainage will probably be required.

Gridley. Inspected June 4, 1916. The sewage is passed through a septic tank and disposed of into a slough about a half mile distant.

Guerneville. Inspected April 8, 1916. Only a portion of the business section of the town is sewered, the effluent discharging directly into the Russian River just above numerous bathing places and summer resorts. It is planned to dig a large cesspool in the gravelly deposits to overcome the objections to river pollution.

Hanford. Inspected November 17, 1915. The sewage is clarified in an Imhoff tank of early design, following which it is disposed of into a slough adjoining, or by broad irrigation on private farms two or three miles distant. During the fruit season, the effluent is said to be very poorly clarified and it is also reported that the ponding of sewage in the slough is injuring the orchards in the vicinity, as well as creating a nuisance. The city is looking forward to construction of high grade works disposing of the effluent into the irrigation canals.

Healdsburg. Inspected September 26, 1915, February 24, 1916; plant tested April 24 and 25, 1916. The sewage is passed through a septic tank, the effluent formerly being disposed of into Dry Creek, a tributary of the Russian River. On the requirement of the bureau, this practice has been discontinued, the effluent being disposed of by irrigation on a nursery along the creek bank. A two-day test of the plant indicated that it was choked full of solids and utterly ineffective.

Hemet. Inspected June 2, 1916. The sewage is passed through a septic tank the effluent of which is periodically raised by an automatically controlled pump to a large concrete storage basin, holding about three days flow. At intervals the contents of this basin are drawn off for irrigating a 40-acre farm owned by the city. A five-year contract has been entered into with a farmer whereby he is given the use of this land and at the expiration of the contract agrees to turn over the farm to the city, planted to peach trees in good condition.

Hermosa Beach. Inspected January 19, 1916. In order to secure sewerage of higher levels and to get ocean disposal, the city is considering abandonment of the present makeshift arrangement and substituting one of the most modern types of treatment. Plans for an activated sludge plant of unusual design have been approved by the bureau.

Holtville. Inspected April 13, 1916. The sewage was formerly passed through a hopper-bottom septic tank, after which it was disposed of by broad irrigation on land farmed for various purposes. The effluent was extremely odorous and on the advice of the bureau the tank has been converted into a double-deck or Imhoff tank delivering a fresh, nonodorous effluent which is then disposed of by the furrow method of distribution. No further complaints have been received.

Imperial. See El Centro.

Isleton. Inspected February 3 and March 31, 1916. The recent destruction of the Oriental quarter, comprising the larger portion of the town, has resulted in the construction of new sanitary structures with sewerage facilities. On the advice of the bureau the sewage is passed through a septic tank for clarification purposes, following which it is intended to dispose of the effluent by subirrigation methods to prevent odors.

King City. Inspected October 8, 1915. The city has in contemplation the construction of a sewer system. The sewage is to be treated in an Imhoff tank and disposed of by irrigation on beet land or into the Salinas River at high stage, according to the recommendations of the bureau. Plans for the project have been prepared and approved.

Lompoc. Inspected June 6, 1916. Bonds have been voted to install a comprehensive system of sewers with an outlet to an Imhoff tank, the effluent of which will be discharged into the Santa Ynez River.

Long Beach. Inspected January 19 and May 20, 1916. The sewage is clarified in one of the newer types of works known in this country. a Reinsch-Wurl screen, the screenings being incinerated and the effluent disposed of through an ocean outfall about 900 feet long. A test of the plant on May 20th indicated that clarification was not as satisfactory as that obtained by tankage treatment in Imhoff tanks. On further inspection it appears that this may be due in part to a structural misfit which will be repaired.

Los Angeles. Inspected January 20, 1916. The sewage of Los Angeles is disposed of through an open outfall at Hyperion. Complaints, due to beach nuisance thereby created, have been received for several years. Considerable effort has been devoted to inducing the city to install treatment works to rectify conditions. A bond issue for this purpose has failed but another is in contemplation.

Los Banos. Inspected April 24, 1916. The sewage is carried about two miles from town to a septic tank, the effluent of which is disposed of into Mud Slough, finally reaching the San Joaquin River. A gravity sludge outlet permits cleaning into the same slough.

Los Gatos. Inspected October 7, 1915; tested May 11-13, 1916. The sewage is treated in a strictly modern works consisting of Imhoff tanks, dosing tanks, sprinkling filters and final settling tank, the effluent being then disposed of into Los Gatos Creek. Operation results have been variable, due to poor management and unusual plant loading. At times the stability has been unusually high and again very low, likewise the Imhoff tank has frequently performed peculiarly. Considerable study of this plant will in all probability be required before the trouble can be rectified.

Los Gatos (The Oak Sanitorium). Inspected December 17, 1915. The sewage of this place is disposed of by cesspool methods which have been unsatisfactory, due to overflow. On account of the restricted area, the bureau has recommended extension of the cesspool disposal, using more cesspools located several yards apart.

Madera. Inspected April 6, 1916. This city disposes of its sewage on land in the crude state. On account of the nuisance which has caused complaint from neighbors, the city is contemplating some treatment. The bureau is convinced that under the local conditions, sewer farming will not be long satisfactory and has recommended only temporary expedients at this time, consisting of the excavation of a basin serving as a septic tank, the sewage being disposed of by careful distribution over a broad acreage of drainable soil.

Marysville. Inspected August 20, 1915. The city sewage is disposed of by pumpage from a sump serving as a settling tank onto a 60-acre sewer farm between the Yuba and Feather rivers. Poor management

in the distribution of the sewage resulted in complaints from Yuba City across the river. Instructions on the proper distribution of sewage, aimed principally at preventing ponding, were given by the bureau. No further complaints have been received.

Mill Valley. Inspected February 3, 1916. The sewage is clarified in an Imhoff tank to which it is lifted by pumps and the effluent disposed of by gravity into the tide flats in the vicinity. Considerable complaint on nuisance has been reported. The cause of the odors seems to be a combination of poorly selected final disposal, lack of care in operating the Imhoff tank, and too long a storage in the pump chamber. In addition, during the winter time, the intercepting sewer is found to be too small to carry away storm water and manholes overflow in the town. The city proposes to lay a larger outfall sewer.

Moraga. Inspected June 28, 1916. The Burgess Land Company have informally taken up the question of disposal of sewage from tracts expected to be bought up soon. A scheme of disposal, including a septic tank and subirrigation methods have been indicated. Higher grade works than these as desired by the company seem inadvisable at this time due to the large oversize of such works in the early years.

Oceanside. Inspected April 11, 1916. The sewage of the city, disposed of normally into the ocean following passage through a septic tank, was interrupted by the severe storms of the past winter which threw a vast sand bar about the outlet. The city desired advice on the type of construction to extend the sewer beyond the bar. Universal-jointed pipe laid in a deep jetted trench was advised.

Ontario. Inspected October 16, 1915. The sewage is disposed of in the crude on a 175-acre farm three miles from town. The soil is very absorptive and no nuisance is complained of.

Orange. Inspected October 16, 1915. The sewage is disposed of by irrigation following clarification in a septic tank, reconstructed on the Imhoff principle. Clarification results are excellent.

Pasadena. See Alhambra.

Paso Robles. Inspected January 6 and May 13, 1916. The sewage of the city has been disposed of in the crude state into the Salinas River for many years. Recurring damage suits recently have caused the trustees to provide a fund for improvements which will become available January 1, 1917. The bureau's advice has been solicited on how to get through the present year in the best possible manner. Instructions have been given along this line and the proper handling of the sewage disposal in the future outlined.

Pittsburg. Inspected October 20, 1915. Approval was asked of a sewerage system and septic tank, taking care of the small portion of the town which could not be sewered into the main system. While the sewage will pollute the San Joaquin River above the water supply intake, it was not apparent that this effect would be any greater with the proposed disposal than if pumped into the main outfall discharging below the intake, on account of the effect of tides, and the proposed proposition has considerable advantage in cost.

Pleasanton (Hacienda—Hearst Ranch). Inspected June 6, 1916. A proposed scheme of sewage disposal to serve a maximum of 200 persons,

consisting of an Imhoff tank and subsurface disposal in duplicate along Arroyo de la Laguna was inspected and approval of the project given.

Pomona. Inspected May 23, 1916. The sewage is settled in a septic tank and the effluent used for irrigating 160 acres of land six miles west of town. Indications are that the tank needs cleaning. The farm is completely shut in by hills and exceptionally well situated for sewage disposal purposes.

Redding. Inspected March 29, 1916. The city has a 40-year contract, dating from 1890, with the owner of a farm near town to dispose of its sewage, untreated, but without nuisance by irrigation on his land. At the time of inspection the farm was apparently being operated in accordance with the terms of the contract. During the rainy seasons it is understood that some sewage overflows into the Sacramento River near by.

Redlands. Inspected May 26, 1916. The city sewage, untreated, is sold under contract for \$1,000 per annum for irrigating purposes. The purchaser resells the sewage for irrigating some 300 acres of citrus land and in addition waters 500 acres of grain land owned by himself which receives the excess flow. All this land is sandy and well adapted to sewage disposal.

Redondo Beach. Inspected January 20, 1916. The septic tank and 30-acre sewer farm on which alfalfa is grown, were inspected. The entire plant is apparently doing good work.

Redley. Inspected October 11 and 12, November 15 and 16, 1915. The city sewage was formerly disposed of into the Kings River, following clarification in an Imhoff tank and application to a makeshift sprinkling filter. Investigation of the effect on the Kings River caused the bureau to sustain complaints on this score and to recommend the substitution of a modern sprinkling filter and final settling tank for the one in use. These works are now under construction.

Rio Vista. Inspected March 31, 1916. The sewage is pumped into the Sacramento River following clarification in a septic tank.

Riverdale. Inspected April 7, 1916. Wastes from the local creameries have caused extreme nuisance in the vicinity. The bureau has recommended tankage treatment employing a two-day retention period, following which the effluent shall be disposed of into the underlying sand beds except during the season when a nearby irrigating canal carries considerable water, when the dilution method may be employed.

Riverside. Inspected February 25, 1916. The sewage was formerly disposed of on a sewer farm of restricted area, following clarification in an open basin-like septic tank. The bureau has approved of a scheme of future disposal similar to the one heretofore in use but employing a much larger acreage and utilizing the well-recognized methods of sewage distribution to secure minimum offense.

San Bernardino. Inspected May 25, 1916. Sewage is taken under contract by the Delta Water Company for irrigation purposes. The company built and maintains an outfall sewer three miles long and a septic tank for primary treatment, disposing of the effluent on 390 acres of sandy land. Last winter floods damaged the system. During the

repair work the sewage was discharged directly into the Santa Ana River. During the winter the sewage enters the river regularly when the land is water-logged.

San Bruno (Belle Air Addition). Inspected December 17, 1915. The sewage was formerly disposed of in cesspools located within 15 feet of the water wells and storage cisterns. The cesspools filled up so that proper flushing did not occur in the sewer system and much complaint resulted. The bureau recommended construction of a pumping station, septic tank, and subirrigation disposal in the granular sandy flats below.

San Jose. Inspected December 18, 1915. The sewage of the city is disposed of into the upper end of arms of sloughs near Alviso, without treatment. Extreme nuisance results in the vicinity. The last mile or more of outfall, being a buried flume construction made several years ago, is badly rotted and in need of repair. Cave-ins are frequent, causing the outfall to flood the surrounding territory. Before reconstruction starts it will be advisable to investigate the entire sewage disposal problem and report on methods suitable in the distant future.

San Luis Obispo. Inspected January 7 and February 21, 1916. The city sewage was formerly disposed of into a small creek near town, following passage through a septic tank. So-called contact beds provided in the design have been abandoned. On account of creek nuisance resulting in the periods of low flow, an improved method has been sought. The bureau has proposed the utilizing of a rented sewer farm about a half-mile distant, utilizing the present septic tank for preliminary clarification.

Sanger. Inspected April 6, 1916. The city has recently completed a septic tank for treating its sewage, the effluent being disposed of onto land along sloughs in the vicinity of the Kings River. No investigation has been made of the effect of this sewage on the Kings River.

Santa Barbara. Inspected February 24 and June 6, 1916. The sewage is discharged in the crude state through two outfalls into Santa Barbara Channel about 500 feet from shore and opposite very popular beaches. The sewage solids float back to shore and cause much nuisance besides a danger to health. The bureau has advised careful study of the problem, indicating also possible means of satisfactorily dealing with the problem. Pending the completion of satisfactory works, the bureau has recommended the quarantining of the beach.

Santa Clara. Inspected September 15, 1915. The city sewage is clarified in a septic tank, the effluent being disposed of by irrigation on an alfalfa field about two miles distant, by-passing a so-called contact bed provided in the original design.

Santa Maria. Inspected January 17 and June 7, 1916. The city sewage is conveyed through a three-mile outfall to an Imhoff tank, the effluent of which is disposed of by makeshift irrigation on a farm having excellently suited soil. The plant is not at all satisfactory on account of the long length of outfall, which is responsible for intense odor in the tank influent. Certain minor details of the design are also in error, correction of which has been recommended.

Santa Maria. Inspected January 10 and May 21, 1916. The sewage is treated by one of the few electrolytic plants in this country. On the dates of inspection it was not apparent that the sewage was being improved by the treatment.

Santa Rosa. Inspected April 20 and June 6, 1916. The sewage is disposed of in a very crude fashion. It is first passed through make-shift sewage tanks, passing thence into batteries of large "evaporating ponds," the remainder of the sewage being allowed to seep away on the surrounding farm comprising about 130 acres. The bureau has recommended that considerable data be collected and the entire problem studied with a view to revising the whole method of handling the sewage.

Saverton. Inspected February 8 and June 19, 1916. On one of these inspections the clam beds in the vicinity were examined for sewage pollution and several of them were found. On the other inspection a sanitary survey of the city was made.

Schenectady. Inspected April 26, 1916. The city sewage is passed through a poorly-operating septic tank, the effluent being disposed of into lawns which finally find their way into the Russian River. No nuisance, however, seems to be created.

Shasta. Inspected February 21, 1916. The city sewage is passed through a septic tank, the effluent being disposed of onto a city sewer farm of limited acreage and having dense soil. Considerable difficulty has resulted which has caused complaint from nearby landowners. The bureau has given explicit instructions on the best mode of handling the farm to minimize the objection, aimed principally at frequent orientation of flow followed by deep cultivation.

Sierra. (Sierra State Home for Feeble-minded). Inspected February 21, 1916. A new septic tank was recently completed, together with facilities for treating the effluent with calcium hypochlorite. Operation is now in an experimental stage.

South Pasadena. See Alhambra.

St. Helena. Inspected March 10th; tested May 2 to 5, 1916. The sewage was formerly disposed of into Napa Creek, following passage through a septic tank. The bureau has ordered the discontinuance of sewerage into Napa Creek, suggesting as an alternative disposal the development of land treatment, either on the city sewer farm or onto adjacent farms. A test of the plant indicated that all tanks were filled with solids and badly in need of cleaning.

Stockton. Inspected June 30, 1916. All the city sewage at present discharges into Stockton Channel, a tidal arm penetrating the center of the city. The arm is found to act as a vast settling basin, and only a small degree of pollution results in the San Joaquin River to which it is tributary. An unbearable nuisance, however, has resulted in the town for many years. The city has in contemplation plans for remedying this condition by sewerage directly into the river, following some form of treatment. The above inspection was preliminary to a determination of the restrictions which should be imposed in order to protect supply in the lower San Joaquin and to prevent nuisance in

Tahoe. Inspected June 10 and 11, 1916. The following resorts were inspected and found to be initiating, or to have completed, improvements in sewage disposal as stipulated by the Board: Brockway, Tahoe Vista, Tahoe Inn, Tahoe Tavern, Homewood, McKinney's, Moana Villa, Pomin's, Emerald Bay Camp, The Grove, Al Tahoe, Young's Hotel and Connelly's Resort. Uniformly the treatment adopted is clarification in a septic tank, either wood or concrete, followed by seepage disposal in inverted flumes laid underground. The soil is particularly loose and absorptive.

Truckee. Inspected June 10, 1916. A brief inspection shows that the sewage of the sanitary district, after passing through a makeshift septic tank, finds its way almost directly into the Truckee River. Sanitary conditions about the town are extremely bad and much work of a vigorous nature will be required in the near future.

Ukiah. Inspected February 23 and April 27, 1916. The sewage is passed through a septic tank which clarifies inefficiently and is then conveyed in an open ditch to the Russian River. The bureau has given the town to understand that a change of disposal must be made at least during the summer months when the river stage is low and has suggested the development of land treatment, distributing the sewage by broad irrigation or by furrows.

Universal City. Inspected January 15, 1916. This place represents solely a moving picture enterprise. The premises are completely sewerage, the sewage being pumped from a sump, following pipage through a septic tank followed by passage through a rock-filled tank, into cesspools in the adobe soil of hills above. On account of the extreme loading of these cesspools at times, they frequently overflow, the sewage then finding its way into the Los Angeles River above a water supply intake of the city of Los Angeles. The city of Los Angeles is endeavoring to bring about improvement at Universal City by its own efforts. The bureau has recommended a high-grade treatment plant consisting of an Imhoff tank, sprinkling filters, chlorination, the final effluent being disposed of onto a sand bar along the river. The Los Angeles city officials, skeptical of the amount of attention which such a plant would receive, are endeavoring to compel the use of orchard land across the river. In the judgment of the bureau, there is greater likelihood of untreated sewage reaching the river from this area than by the method proposed.

Vacaville. Inspected June 2, 1916. The sewage is passed through a septic tank which clarifies very ineffectively, the effluent being utilized by an adjoining orchard or allowed to run onto some waste land in the vicinity. Odors are distinctly noticeable in the vicinity.

Venice. Inspected January 19, 1916. The sewage is passed through a septic tank situated in the city yards, the effluent being disposed of by pumpage into the ocean through a short outfall sewer.

Walnut Creek. Inspected September 3, 1915. The sewer system is privately owned by the Burgess Land Company and was built primarily to serve anticipated development. Only a small portion of the town of Walnut Creek has connected with the system. Treatment works of a fairly high order are provided, consisting of a two-channel Imhoff

tank, dosing tank and contact bed, the final effluent being discharged into San Ramon Creek. Expected connection with the sewer has never materialized and the plant is approximately thirty times too large. The attendant aging of sewage and lack of care has resulted in considerable nuisance on account of odors and mosquitoes in the vicinity. The contact bed has been by-passed. The entire works are in a deplorable condition.

Walnut Grove. Inspected December 2, 1915. The influx of oriental labor to the vicinity has made necessary the building of large oriental quarters at this place. In addition to sanitary housing, a sewer system has been provided. In passing upon the disposal of the sewage the bureau recommended the construction of septic tanks, the effluent being pumped into the Sacramento River in one case and into Snodgrass Slough in the other.

Whittier. Inspected March 14, 1916. The sewage is passed through a septic tank close to a county road, the effluent being applied to a farm in the vicinity. The city has made plans for remodeling the tank along the two-story principle, the project receiving the tentative approval of the bureau.

Willows. Inspected March 28, 1916. The sewage has been passed through a septic tank, following which it runs through deep ditches, by-passing a 160-acre sewer farm owned by the city, onto marsh land below. Recent developments in this vicinity make the nuisance a serious factor and in all probability radical changes in the disposal will be necessary in the near future. The development of the rice industry in this vicinity has caused the bureau to suggest a high degree of purification of the sewage, following which it would form an ideal irrigating stream for rice farming.

Winters. Inspected and tested May 5 and 6, 1916. The sewage is clarified in an Imhoff tank of early design, being entirely covered with a concrete roof. The effluent is discharged directly into Putah Creek. On account of the considerable use of this stream for drinking purposes by fruit pickers and others in the vicinity, the bureau has demanded immediate discontinuance of the practice, suggesting utilization of land treatment in the vicinity, if the land can be obtained.

Yountville (Old Soldiers' Home). Inspected May 5, 1916. The sewage of this Home, serving about one thousand persons, is treated by passage through a septic tank, preceded by a large so-called equalizing tank, intended to bring about uniform detention in the septic tank. As a matter of fact, clarification is practically complete in the equalizing tank. The original design included also contact beds of unique design, the effluent being used for irrigation on alfalfa and garden truck. The contact bed has since fallen into disuse and the septic tank effluent is discharged directly onto alfalfa land. Recurring complaints reaching this office on odors resulted in an investigation. From the testimony it was not clear whether the odors emanated from the sewage disposal or from the decay of heavy algæ growths in the drainage ways in the neighborhood. The matter has been left in the hands of the complainants to locate with definiteness the source of the odor.

REPORT OF THE BUREAU OF FOODS AND DRUGS.

By E. J. LEA, M.S., Director.

The report of the Bureau of Foods and Drugs, herewith submitted, is the fifth biennial report of this bureau, and covers the period from July 1, 1914, to June 30, 1916.

A change in the personnel of this bureau was made July 1, 1915. Professor M. E. Jaffa, the pioneer food official in this state, resigned as director of the bureau, and Professor E. J. Lea was appointed to succeed him.

The inspection force was increased from five men to six men in August, 1915.

During the year ending June 30, 1915, 2,512 samples were analyzed, and 3,384 samples were analyzed during the year ending June 30, 1916, making a total of 5,896 samples for the biennial period.

The samples are classified as follows:

	Year ending June 30, 1915	Year ending June 30, 1916
Official samples—		
Foods	980	1,394
Drugs	380	271
Unofficial samples—		
Foods	112	424
Drugs	26	40
State institution	1,064	922
Cold storage		333
	2,512	3,384

The number of state institution samples during the second year of the biennial period is somewhat less than the number for the first year of the period. This is due to the fact that a change has been made in the system of bids. Formerly, each of the fifteen institutions submitted numerous samples with individual bids, but during the last year of the biennial period one set of samples was submitted for all institutions by the State Purchasing Agent, in accordance with the new system inaugurated by the State Board of Control.

This system of examination of samples for state institutions, as provided by the State Board of Control, has resulted in great improvement in the quality of food and other supplies delivered to the institutions. It has also resulted in a great financial saving to the state.

The list of samples given above includes very few milk samples, because the State Dairy Bureau in California is charged with the enforcement of the dairy laws of the state, and all of the larger cities have their own milk inspection departments.

In addition to cooperating with the State Board of Control and State Purchasing Agent, this bureau has also cooperated with the State Fish and Game Commission, state health officers and the United States Food Inspection Laboratory in San Francisco.

The work of this bureau has been greatly increased owing to the 1915 amendment to the cold storage act, which increased the number

of cold storage plants requiring supervision. The work of examining cold storage materials, which had been in storage for twelve months, in order to determine their fitness for further storage was also a considerable item.

The work and efficiency of this bureau has been materially increased by being able to quarantine decomposed food unfit for human consumption. Under the provisions of the general health laws, the State Board of Health authorized this bureau to exercise the power of quarantine whenever necessary to prevent the use of decomposed, filthy or putrid foods for human consumption.

During the fiscal year ending June 30, 1916, more than one million pounds of decomposed foods and food products were quarantined, condemned and destroyed.



A mammoth egg omelet. In this fire are more than 200,000 frozen canned eggs and several tons of fish, meat and chili peppers, all condemned and destroyed by the California State Board of Health.

A large proportion of this destroyed material consisted of tomato products, such as tomato pulp, tomato puree, and tomato catsup which was made from decomposed and moldy stock. This material was entirely unfit for human consumption. Other large items were frozen egg meats, which were decomposed and rotten, and cold storage poultry. Besides these materials, a large number of miscellaneous foodstuffs in smaller amounts were condemned and destroyed; the details appear later in this report. Nearly all of this material was condemned and destroyed with the consent of the owners. In some cases, however, it was necessary to bring prosecutions in the courts and obtain an order of destruction from the judge.

This bureau has cooperated with several commercial associations, clubs and educational institutions by giving lectures on the features of the food and drug laws which were of special value to them.

The California Wholesale Grocers Association, the California Retail Grocers Association, and the California Master Bakers Association deserve special mention. These organizations stand for pure, wholesome food products and they are a great source of assistance in enforcing the California food laws.

A number of newspapers in the state assist the work of this bureau by publishing articles concerning violations of the food and drug laws. Such publicity has a great educational value. It aids honest dealers, and some careless ones, by calling their attention to certain violations they may be committing themselves. The wilful violators are frequently checked by the publicity, and the information is of value to the general public, as it attracts attention to many articles which are either adulterated or mislabeled, thereby enabling the consumer to be more discriminating.

The courts of the state, generally speaking, render great assistance to this bureau. A large majority of our cases which were tried in court



Five drays were required to haul the condemned foods, most of which consisted of decomposed frozen eggs, to an abandoned stone quarry, where they were burned.

resulted in conviction, although many of the dealers were placed on probation. In some localities, however, it is practically impossible to get a conviction on any kind of a charge. Political influence is usually responsible in such cases.

Four hundred and ninety-one cases were referred to district attorneys for prosecution in the courts, during this biennial period. About 90 per cent of these cases resulted in conviction; jail sentences were imposed in four cases. The court cases and fines for the two years are as follows:

	Year ending June 30, 1915	Year ending June 30, 1916
Cases referred to district attorneys.....	30	461
Fines imposed	\$170 00	\$6,021 00
Imprisonments		4

During the fiscal year ending June 30, 1916, a great deal of time was devoted to sanitary inspections. This work is exceedingly important. Many food producing establishments were found that were entirely unfit for the production or dispensing of food materials. In several cases it was necessary to quarantine the establishments until they could be put in a sanitary condition. This feature of the work requires a large number of inspectors, and in order to get good results it has often been necessary to secure the cooperation of health officers and local inspectors in the different cities.

A great improvement has been noted in the quality and labeling of both food and drug products in this state. The majority of dealers need only to have defects called to their attention in order to bring about satisfactory results. There are always a certain number, how-



In addition to 17,000 dozen spoiled eggs, there were 10,000 pounds of decomposed fish, and 5,000 pounds of catsup and chili peppers destroyed by this fire.

ever, who try to evade the food and drug laws, and because of these it is necessary to keep the field well covered by inspectors at all times. This is especially true in the case of perishable goods, such as meats, vegetables, condiments, fruit, etc. It is surprising to see how many people are willing to take a chance on selling unfit food.

The six inspectors of this bureau have done excellent work so far as they have gone, but in order to adequately cover a state of this size a much larger force will be required.

OFFICIAL SAMPLES—FOODS AND FOOD PRODUCTS FOR THE FISCAL YEARS ENDING JUNE 30, 1915, AND JUNE 30, 1916.

Baking Powder.

Year ending June 30, 1915.

22 samples legal.

None illegal.

Total 22.

There is no definite standard for baking powder in California. These samples ranged in available carbon dioxide from 10 to 13 per cent. Many of the samples were analyzed for the presence of arsenic, but none were found to contain more than the slightest trace of this material.

Year ending June 30, 1916.

2 samples legal.

None illegal.

Total 2.

The two samples of baking powder analyzed were normal products, containing more than 10 per cent carbon dioxide.

Beverages.

Year ending June 30, 1915.

40 samples legal.

16 samples illegal.

Total 56.

These samples included 23 brands of soda waters, ciders, ginger ales, fruit juices, etc. The principal violations consisted in the use of artificial flavors, artificial colors, and preservatives, without properly declaring such facts on the labels. Very few nonpermissible colors were found. The iron beer samples contained practically no iron. The apple cider samples were largely imitation products and contained practically no apple juice. The same is true of orangeade.

Nearly all of the so-called orangeade on sale in this state is made from water, citric or tartaric acid, sugar, orange extract, coal tar color and, in some cases, a preservative. Orangeade should consist of orange juice, sugar and water, with more or less orange peel for flavoring. If other materials are used, the product should be labeled "imitation orangeade."

Year ending June 30, 1916.

21 samples legal.

35 samples illegal.

Total 56.

The comments made on the above samples of beverages for the year ending June 30, 1915, apply to these samples as well.

Butter.

Year ending June 30, 1915.

3 samples legal.

1 sample illegal.

Total 4.

The illegal sample was rancid and under weight.

Year ending June 30, 1916.

2 samples legal.

2 samples illegal.

Total 4.

The 2 illegal samples were rancid and unfit for human consumption.

Bread.

Year ending June 30, 1916.

3 samples legal.

1 sample illegal.

Total 4.

The illegal sample of bread was labeled, "Butter Bread, Pure Creamery Butter Used," when in fact the sample contained only a mere trace of butter. The shortening consisted largely of cottonseed products.

Cereals.

Year ending June 30, 1915.

8 samples legal.

None illegal.

Total 8.

These samples consisted of oat, wheat and corn preparations, which were true to name and in good condition.

Year ending June 30, 1916.

4 samples legal.

2 samples illegal.

Total 8.

One of the illegal samples was infested with insects and one was falsely labeled.

Cheese.

Year ending June 30, 1915.

No samples legal.

1 sample illegal.

Total 1.

This sample of cottage cheese was deficient in butter fat. The label stated that the product was enriched with pure cream, whereas the sample contained only a slight trace of cream.

Year ending June 30, 1916.

2 samples legal.

3 samples illegal.

Total 5.

Two of the illegal samples were cottage cheese, labeled to indicate that they were enriched with pure cream, when in fact only a mere trace of cream was present. One sample of California cheese was deficient in butter fat.

Chocolate.

Year ending June 30, 1915.

1 sample legal.

3 samples illegal.

Total 4.

Three of these samples were either powdered cocoa or sweetened powdered cocoa, which were sold as chocolate.

Year ending June 30, 1916.

1 sample legal.

4 samples illegal.

Total 5.

These 4 illegal samples were deficient in chocolate fat.

Cocoa.

Year ending June 30, 1915.

No samples legal.

6 samples illegal.

Total 6.

All of these samples contained excessive mineral matter, due to processing.

Year ending June 30, 1916.

1 sample legal.

No samples illegal.

Total 1.

Coffee.

Year ending June 30, 1915.

7 samples legal.

2 samples illegal.

Total 9.

The two illegal samples were adulterated with chicory and roasted cereals.

Year ending June 30, 1916.

2 samples legal.

5 samples illegal.

Total 7.

The five illegal samples were adulterated either with chicory or cereal, or both.

Coffee Substitute.

Year ending June 30, 1916.

No samples legal.

1 sample illegal.

Total 1.

The label on this sample contained false and misleading statements.

Colors.

Year ending June 30, 1915.

8 samples legal.

1 sample illegal.

Total 9.

The illegal sample contained nonpermissible coal-tar color.

Condiments.

Year ending June 30, 1915.

35 samples legal.

23 samples illegal.

Total 58.

These samples were classified as follows:

1 Horseradish, legal.

1 Olives and pimento, legal.

1 Chili powder, adulterated with foreign material.

2 Prepared mustard, artificially colored with turmeric.

1 Sweet pickles, containing preservatives not declared on the label.

3 Sweet pickles, legal.

1 Plain pickles, legal.

1 Pickled cauliflower, legal.

1 Relish, containing a prohibited preservative—salicylic acid.

1 Relish, containing turmeric not declared.

1 Relish, containing benzoate of soda, not declared.

4 Relish, legal.

1 Salad dressing, legal.

- 1 Worcestershire sauce, containing excessive mold.
- 1 Worcestershire sauce, containing benzoate of soda not declared on label.
- 5 Worcestershire sauce, legal.
- 13 Tomato catsup, containing benzoate of soda, which was not declared on label.
- 17 Tomato sauce, legal.
- 1 Tomato puree, containing excessive mold.
- 1 Tomato puree, legal.

Year ending June 30, 1916.

47 samples legal. 206 samples illegal. Total 313.
 These samples were classified as follows:

- 2 Chowchow, legal.
- 2 Chowchow, illegal.
- 1 Chutney, legal.
- 1 Horseradish, legal.
- 1 Miscellaneous, illegal.
- 1 Prepared mustard, legal.
- 9 Prepared mustard, illegal.
- 2 Piccalilli, illegal.
- 2 Sweet pickles, legal.
- 3 Sweet pickles, illegal.
- 3 Sour pickles, legal.
- 15 Sour pickles, illegal.
- 9 Relish, legal.
- 2 Relish, illegal.
- 5 Miscellaneous sauce, legal.
- 5 Miscellaneous sauce, illegal.
- 4 Worcestershire sauce, legal.
- 2 Worcestershire sauce, illegal.
- 8 Tomato catsup, legal.
- 124 Tomato catsup, illegal.
- 9 Tomato mixture, illegal.
- 2 Tomato puree, legal.
- 6 Tomato puree, illegal.
- 7 Tomato pulp, legal.
- 73 Tomato pulp, illegal.
- 2 Tomato conserva, illegal.
- 1 Capers, legal.
- 7 Capers, illegal.
- 1 Onions, legal.
- 4 Onions, illegal.

By far the greater proportion of the above condiments were adulterated because they consisted in whole or in part of decomposed and filthy vegetable substance. The tomato products and some of the other materials contained excessive bacteria, yeast, spores and mold. In some instances benzoate of soda was used without being declared on the label, as required by law. The prepared mustard samples contained turmeric as a coloring matter and were adulterated with cereals. Many of the sour pickles were decomposed and unfit for human consumption. The Worcestershire sauce samples represented two large vats which contained much filth, such as dead flies and gnats, dust and dirt. These vats contained sufficient material to fill 32,000 bottles. It was all condemned and emptied into the sewer. The conserva samples were made by condensing tomato pulp which was badly decomposed. The onion samples represented several barrels of pickled onions which were rotten and unfit for human consumption. More than 2,000 barrels of tomato pulp, tomato puree and tomato catsup were condemned and destroyed under the supervision of this bureau during this fiscal year.

Confectionery.

Year ending June 30, 1915.

42 samples legal. 3 samples illegal. Total 45.

These violations consisted of the use of coal tar colors to imitate natural products, and paraffin in chewing candy.

Year ending June 30, 1916.

19 samples legal. 6 samples illegal. Total 25.

These violations consisted of the use of artificial colors to imitate natural products; glucose and brown sugars substituted for maple candy; paraffin in chewing candy, and spirituous liquor in chocolate candy.

Corn.

Year ending June 30, 1915.

5 samples legal. 1 sample illegal. Total 6.

The illegal sample contained added cornstarch.

Cura.

Year ending June 30, 1916.

2 samples legal.

2 samples illegal.

Total 4.

The legal ones contained added over starch.

Cream.

Year ending June 30, 1915.

1 sample legal.

Total 1.

Eggs.

Year ending June 30, 1915.

No samples legal.

1 sample illegal.

Total 1.

This sample was sold as fresh eggs and upon examination was found to consist of stale and partially decomposed eggs.

Year ending June 30, 1916.

17 samples legal.

143 samples illegal.

Total 158.

The egg samples consisted of eggs in the shell and frozen egg meats. In nearly all cases the eggs were sold as fresh eggs and upon examination were found to consist of stale, decomposed or rotten eggs. In some instances as high as four to five in a dozen were rotten and in many cases from one to three in a dozen were rotten. Many dealers mixed storage and held eggs with fresh eggs with eggs and sold a case and sold eggs for fresh eggs without any fresh stock.

The samples of frozen egg meats were decomposed, moldy or rotten and represented over 500 pounds of this product. More than a dozen different dealers were involved. Two parties in Los Angeles made a business of buying cull eggs from chickens and houses at from 50 cents to \$1.00 per case. These eggs were packed in boxes and frozen after which they were sold to a certain class of buyers for human use. Some of the latter lots of these eggs came from China in the steam. They were held in San Francisco in cold storage for many months, at which time a large percentage of them had spoiled. The eggs were then broken into cans and frozen and were marketed to be used for bakers' trade. These frozen eggs were all condemned and destroyed. In one instance more than 20,000 pounds were turned at the time and it required one cord of wood and forty gallons of oil to do the work. This fire also contained several tons of chili peppers and several tons of fat which were ready for destruction at the same time. In addition to the 500 pounds of frozen egg meats mentioned above there are other pounds being held pending action.

Egg Substitutes.

Year ending June 30, 1915.

No samples legal.

4 samples illegal.

Total 4.

These samples were preparations of starch and gelatine artificially colored with coal tar dye.

Year ending June 30, 1916.

1 sample legal.

7 samples illegal.

Total 8.

The legal samples were preparations of starch, gelatin, sugar, coal tar color and soap stock containing no eggs. They were prepared and sold as being fully equal to eggs. In addition to these 100 samples have the properties of eggs or the nutritive value of eggs.

Extracts.

Year ending June 30, 1915.

25 samples legal.

44 samples illegal.

Total 73.

These samples are as follows:

Extract	Legal	Illegal	Total
Vanilla	22	18	40
White Cherry	1		1
Berries		2	2
Almond Cherry	2	6	8
Pineapple		1	1
Pineapple		4	4
Blackberry		4	4
Blackberry		2	2
Blackberry	4	5	9
Blackberry		2	2

The illegal lemon extracts were largely deficient in lemon oil. Many samples contained less than 1-10 per cent. The banana extracts were artificially flavored and colored. Some of the illegal Jamaica ginger extracts were deficient in alcohol, some deficient in total solids, while in others the percentage of total solids soluble in alcohol and in water varied materially from the requirements. The peppermint extract was deficient in peppermint oil. The pineapple extracts were flavored and colored. The strawberry extracts were artificially flavored and colored. The illegal vanilla extracts contained coumarin, added vanilla and artificial coloring. The vanilla substitutes were mislabeled, because the word "substitute" was in such small and indistinct type that it could not be easily read.

Year ending June 30, 1916.

20 samples legal.

30 samples illegal.

Total 50.

These samples are as follows:

Extract	Legal	Illegal	Total
Ginger		3	3
Lemon	11	12	23
Maple		1	1
Miscellaneous	1		1
Oil of pineapple		1	1
Orange	1		1
Peppermint	2	5	7
Raspberry		1	1
Strawberry		1	1
Vanilla	4	6	10
Imitation vanilla	1		1

In general, the comments made on the extract samples for the year ending June 30, 1915, apply to these samples.

Fish.

Year ending June 30, 1915.

7 samples legal.

4 samples illegal.

Total 11.

The illegal samples were all salmon; three samples were mislabeled as to variety and the other sample was decomposed.

Year ending June 30, 1916.

4 samples legal.

1 sample illegal.

Total 5.

The illegal sample consisted of dried shrimps which were decomposed and filthy.

Flour.

Year ending June 30, 1915.

6 samples legal.

1 sample illegal.

Total 7.

The illegal sample was damaged and unfit for human consumption.

Year ending June 30, 1916.

8 samples legal.

2 samples illegal.

Total 10.

The illegal samples were moldy and unfit for human consumption.

Fruits.

Year ending June 30, 1915.

11 samples legal.

2 samples illegal.

Total 13.

The two illegal samples were canned peaches, which contained excessive tin.

Year ending June 30, 1916.

6 samples legal.

6 samples illegal.

Total 12.

Two of the illegal samples were canned apples, short in weight; 1 sample of figs was decomposed and unfit for human consumption. Three samples of seeded raisins were decomposed, filthy and unfit for human consumption.

Gelatin.

Year ending June 30, 1915.

6 samples legal.

Total 6.

Year ending June 30, 1916.

1 sample legal.

Total 1.

Honey.

Year ending June 30, 1916. Total 3.
 3 samples legal.

Ice Cream.

Year ending June 30, 1915. Total 39.
 27 samples legal. 12 samples illegal.
 The illegal samples were deficient in butter fat. The butter fat ranged from 4 per cent to 14 per cent.

Year ending June 30, 1916. Total 16.
 14 samples legal. 2 samples illegal.
 The illegal samples were deficient in butter fat.

Jams and Jellies.

Year ending June 30, 1915. Total 5.
 2 samples legal. 3 samples illegal.
 Two of the illegal samples were glucose jellies containing artificial coloring and flavoring, which were sold as genuine jelly. One sample labeled strawberry jelly was made largely from apple stock.

Year ending June 30, 1916. Total 9.
 4 samples legal. 5 samples illegal.
 The illegal samples contained coal tar color, artificial flavor and were made largely from apple stock instead of currant, raspberry and strawberry, as was indicated on the labels.

Lard.

Year ending June 30, 1916. Total 3.
 3 samples legal.

Liquors.

Year ending June 30, 1915. Total 19.
 6 samples legal. 13 samples illegal.
 The illegal samples consisted of seven samples of absinthe, the sale of which is prohibited in California; two samples of beer, the labels on which were incorrect as to the kind of beer and place of manufacture; three samples of Creme de Menthe, containing a prohibited coal tar color, and one sample of wine labeled Orange Wine which was adulterated with a sugar and grape wine.

Year ending June 30, 1916. Total 75.
 17 samples legal. 58 samples illegal.
 These samples are classified as follows:

Liquor	Legal	Illegal	Total
Beer	1	5	6
Brandies		3	3
Cordials	2	9	11
Gin	5	27	32
Vermouth	3	11	14
Whiskey		1	1
Wines	5	2	7
Miscellaneous	1		1

The five illegal beer samples were mislabeled as to variety and the place of manufacture. The three brandy samples were adulterated with water. Eight of the illegal cordials were sold as blackberry cordials, but in fact were largely mixtures of wines which were flavored and sweetened. In some cases blackberry juice was used but the product did not conform to the standard given in the National Formulary. Most of the illegal gin samples consisted of cheap inferior bulk gin which had been placed in genuine imported gin bottles, of various high grade brands. Eleven samples of cheap inferior vermouth had been placed in imported vermouth bottles and sold as the genuine imported article. One sample of Whiskey was adulterated with water. Two samples of wine were diseased wines, unfit for human consumption.

Macaroons.

Year ending June 30, 1916.

No samples legal. 5 samples illegal. Total 5.

These samples were all adulterated with wheat flour, some of them containing as high as 75 per cent of flour.

Meat and Meat Products.

Year ending June 30, 1915.

47 samples legal. 27 samples illegal. Total 74.

These samples are classified as follows:

	Legal	Illegal	Total
Chopped meat	29	23	52
Pork sausage	11	3	14
Sausage, frankfurter, pork, beef.....	5	1	6
Mince meat	1		1
Tamals	1		1

The 23 samples of chopped meat contained a preservative which is prohibited in meats, namely, sodium sulphite. Three samples of pork sausage also contained sodium sulphite. One sample of frankfurter sausage contained coal tar dye in the meat.

Year ending June 30, 1916.

138 samples legal. 110 samples illegal. Total 248.

These samples are classified as follows:

	Legal	Illegal	Total
Chopped meat and hamburger.....	82	65	147
Frankfurter sausage	23	29	52
Pork sausage	33	16	49

The 65 illegal samples of chopped meat contained the preservative, sodium sulphite, which is prohibited in meats. Twenty-nine samples of frankfurter sausage contained added cereal, which was not declared. Sixteen samples of pork sausage were adulterated either with sodium sulphite, cereals, or both.

Milk.

Year ending June 30, 1915.

6 samples legal. 2 samples illegal. Total 8.

One sample of milk had been watered and one sample was labeled as tuberculin tested, when in fact it was not entitled to such distinction.

Milk (Evaporated).

Year ending June 30, 1915.

94 samples legal. 50 samples illegal. Total 144.

The illegal samples were all below the required standards, either for solids or for fat.

Year ending June 30, 1916.

7 samples legal. 8 samples illegal. Total 15.

Six of the legal samples were condensed skimmed milks which contained excessive bacteria. Some of these samples contained as high as 30,000,000 streptococci per cc. and 80,000,000 other bacteria. These samples were labeled Tulip Brand Condensed Skimmed Milk. Two samples of condensed milk were below the standard in solids.

Nuts.

Year ending June 30, 1916.

No samples legal.

4 samples illegal.

Total 4.

Three of these samples were walnut meats and consisted of rancid, decomposed, insect-infested material. The other sample was walnuts, in the shell, of the same quality. Two thousand one hundred seventy-five pounds of nut meats were condemned and destroyed.

Oils (Edible).

Year ending June 30, 1915.

7 samples legal.

1 sample illegal.

Total 8.

The illegal sample was labeled pure olive oil, whereas it consisted largely of cottonseed oil.

Year ending June 30, 1916.

5 samples legal.

1 sample illegal.

Total 6.

The illegal sample contained cottonseed oil, which had been substituted for olive oil.

Olives.

Year ending June 30, 1915.

10 samples legal.

Total 10.

Year ending June 30, 1916.

5 samples legal.

2 samples illegal.

Total 7.

The two illegal samples were decomposed and unfit for human consumption.

Pastes.

Year ending June 30, 1915.

1 sample legal.

10 samples illegal.

Total 11.

The illegal samples were all sold as egg noodles. Some of them contained no eggs at all and others contained less than the amount of eggs required by the standard.

Year ending June 30, 1916.

33 samples legal.

33 samples illegal.

Total 66.

The illegal samples consisted largely of egg noodles, the majority of which contained practically no eggs at all. Some samples did contain eggs, but less than required by the standard. Two samples of vermicelli were infested with insects and unfit for human consumption.

Pastry.

Year ending June 30, 1916.

5 samples legal.

2 samples illegal.

Total 7.

The two illegal samples were cake. The labels stated that they were made with pure butter, when in fact no butter was used.

Pastry Fillers.

Year ending June 30, 1915.

No samples legal.

4 samples illegal.

Total 4.

The labels on these samples contained statements which were false and misleading.

Year ending June 30, 1916.

1 sample legal.

3 samples illegal.

Total 4.

The illegal samples contained misleading and deceptive statements on the labels. The labels indicated that the products possessed the properties of eggs, when in fact the samples consisted largely of starch, gelatine, sugar, soapbark preparations, and coal tar color.

Rice.

Year ending June 30, 1915.

5 samples legal.

No samples illegal.

Total 5.

Salt.

Year ending June 30, 1916.

No samples legal.

1 sample illegal.

Total 1.

The label indicated that the salt was the purest and best on earth, but upon analysis a sample was found to contain 6.2 per cent of sodium sulfate.

Saltpeter.

Year ending June 30, 1916.

No samples legal.	1 sample illegal.	Total 1.
-------------------	-------------------	----------

This sample was analyzed and found to consist of Chili saltpeter.

Sirups—Table.

Year ending June 30, 1915.

4 samples legal.	7 samples illegal.	Total 11.
------------------	--------------------	-----------

The illegal samples consisted of sirups sold as maple. Most of these samples consisted entirely of cane sirup or cane and glucose sirup.

Year ending June 30, 1916.

3 samples legal.	8 samples illegal.	Total 11.
------------------	--------------------	-----------

The illegal samples in all cases consisted of cane or cane and glucose sirup sold as maple.

Sirups—Soda Water.

Year ending June 30, 1915.

5 samples legal.	49 samples illegal.	Total 54.
------------------	---------------------	-----------

The illegal samples consisted of sirups labeled Cherry, C'reme de Menthe, Banana, Orange, Lemon, Raspberry and Strawberry. These samples were either artificially colored, artificially flavored, or both, without properly declaring these facts.

Soups.

Year ending June 30, 1916.

1 sample legal.	No sample illegal.	Total 1.
-----------------	--------------------	----------

Spices.

Year ending June 30, 1915.

71 samples legal.	9 samples illegal.	Total 80.
-------------------	--------------------	-----------

The illegal samples were as follows: Four cinnamon, consisting of weak and exhausted material; two cloves, consisting of old, exhausted material; one mace, consisting of Bombay mace, an inferior, worthless variety, substituted for true mace; one mustard, consisting of old, exhausted material, and one nutmeg, adulterated with mustard hulls and pepper refuse.

Year ending June 30, 1916.

29 samples legal.	24 samples illegal.	Total 53.
-------------------	---------------------	-----------

The illegal spices were as follows: Four allspice, consisting of weak, exhausted material; one red pepper, infested with mold and insects; two cinnamon, consisting of weak, exhausted material; four cloves, adulterated with foreign tissue, excessive clove stems, etc.; one ginger, consisting of inferior, exhausted material; three mace, consisting of Bombay mace, an inferior, worthless variety, substituted for true mace; eight mustard, some adulterated with cereals and colored with turmeric, and others infested with insects.

Sugar.

Year ending June 30, 1915.

10 samples legal.	1 sample illegal.	Total 11.
-------------------	-------------------	-----------

The illegal sample was labeled maple sugar, when in fact it consisted almost entirely of brown cane sugar.

Year ending June 30, 1916.

1 sample legal.	No sample illegal.	Total 1.
-----------------	--------------------	----------

Vegetables (Dried and Canned).

Year ending June 30, 1915.

5 samples legal.	28 samples illegal.	Total 33.
------------------	---------------------	-----------

The illegal samples were as follows: One sample of canned beans, containing copper sulphate, the use of which is prohibited in foods; one sample of canned beans, labeled stringless beans; this can contained excessive tough strings; 28 samples of canned peas, containing copper sulphate, which is prohibited in foods.

Canned.

Year ending June 30, 1916.

3 samples legal.

7 samples illegal.

Total 10.

The illegal samples were as follows: One sample of string beans, colored with copper sulphate; one sample of canned hominy, decomposed and unfit for human consumption; three samples of canned peas, containing copper sulphate, the use of which is prohibited in food; two samples of tomatoes, consisting of decomposed and filthy material, unfit for human consumption.

Vinegar.

Year ending June 30, 1915.

53 samples legal.

22 samples illegal.

Total 75.

The illegal samples were nearly all labeled cider vinegar. Many of these consisted of cheap, distilled vinegar artificially colored, while others consisted of cider vinegar adulterated with water. In some cases the vinegar had been diluted to 4 per cent acetic strength, without declaring this fact on the label, as required.

Year ending June 30, 1916.

27 samples legal.

15 samples illegal.

Total 42.

The illegal samples were all sold as cider vinegar, either made from diluted acetic acid with artificial coloring, or vinegar which had been adulterated with water.

Water.

Year ending June 30, 1915.

1 sample legal.

No sample illegal.

Total 1.

Year ending June 30, 1916.

No sample legal.

1 sample illegal.

Total 1.

This sample was so-called mineral water labeled "New Life Mineral Water," and represented as a very pure article. Analysis showed the presence of excessive *B. coli*, which rendered the water unfit for drinking purposes.

FOOD AND FOOD PRODUCTS—UNOFFICIAL SAMPLES.

Year ending June 30, 1915.

98 samples legal.

13 samples illegal.

Total 111.

Twenty-two of these unofficial samples were baking powders analyzed for the presence of arsenic. These samples were found to be remarkably free from arsenic, only a few samples showing even the smallest trace.

Twenty samples of water were analyzed chemically for health officers in various parts of the state. The total mineral salts in these samples were not excessive, although one sample from Huntington Park contained considerable magnesium sulphate. Six samples of water were analyzed for the Fish and Game Commission. Four of these samples were taken from the Salinas River and two of them contained hydrogen sulphide in sufficient quantity to be detrimental to fish.

The other samples are tabulated later in this report.

Year ending June 30, 1916.

195 samples legal.

229 samples illegal.

Total 424.

Two hundred and twenty-four unofficial samples of condiments were analyzed and 58 passed; 166 were decomposed, filthy and unfit for human consumption. These samples were taken from large stocks of goods in possession of certain factories. These samples represent large lots of tomato products and other condiments which were quarantined and which the owners were required to carefully sort. The bad material was condemned and destroyed before the edible material could be used. These condiments include tomato pulp, tomato catsup, Worcestershire sauce, sweet and sour pickles, pickled onions, olives, chowchow, and sauces.

The 26 samples of flour represent two cargoes of damaged flour which became moldy. Most of this flour was suitable for use after reboiling. Certain small lots were not suitable for human consumption. These lots were sold for hog feed.

The other unofficial samples are listed later in this report.

DRUGS—OFFICIAL.

For the Fiscal Years Ending June 30, 1915 and June 30, 1916.

During the fiscal year ending June 30, 1915, 380 official samples of drugs were analyzed; 118 of these were passed, and 262 were illegal.

During the fiscal year ending June 30, 1916, 271 official samples were analyzed; 124 samples were passed and 147 were illegal.

The drug stores throughout the state have very largely eliminated mislabeled patents, and with comparatively few exceptions, their stocks are in excellent condition. There are still some druggists, however, who are careless in making preparations, and some who buy supplies without a guaranty. Many druggists might have avoided prosecution had they taken the simple precaution of obtaining guaranties for all supplies they purchase.

The official drug samples for the biennial period are as follows:

Ammonia, Aromatic Spirits of.

	Year ending June 30, 1915.	
16 samples legal.	127 samples illegal.	Total 143.
	Year ending June 30, 1916.	
3 samples legal.	12 samples illegal.	Total 15.

These samples ranged from slightly above standard to 80 per cent below standard strength. The samples classed as illegal were all more than 30 per cent below the required standard.

Experiments in this laboratory show that aromatic spirits of ammonia can be kept one year with a loss of only 5.5 per cent of its original strength. A five-pint bottle of aromatic spirits of ammonia was prepared on September 14, 1914. This bottle was kept in the laboratory at ordinary room temperature and opened each week during one year, for the purpose of drawing samples for analysis. On October 1, 1915, the sample had lost only 5.5 per cent of its original strength. Similar results were obtained on other samples.

Many druggists have complained that it is impossible to make aromatic spirits of ammonia so that it will keep. On the other hand, a great many druggists do make this preparation, which keeps in a perfectly satisfactory manner, and results of experiments in this laboratory and elsewhere show conclusively that this preparation can be made and kept in a practical way if care is exercised in the selection of ingredients, and the directions of the Pharmacopoeia are carefully carried out.

Arnica.

	Year ending June 30, 1915.	
3 samples legal.	No sample illegal.	Total 3.

Asafoetida Po.

	Year ending June 30, 1915.	
No sample legal.	1 sample illegal.	Total 1.

This sample was analyzed and found to contain excessive mineral matter as a make-weight.

Aspirin.

	Year ending June 30, 1916.	
67 samples legal.	43 samples illegal.	Total 110.

The illegal aspirin samples were composed of various mixtures of starch, milk, sugar and tartaric acid. Some of these illegal samples, in the form of tablets, contained genuine aspirin but were short in weight owing to the use of excessive filler. The majority of the samples, however, contained very little, or no, aspirin at all. Some of the supplies of this fake aspirin were shipped into this state from Indianapolis, usually by express, in unlabeled packages. Many dealers were convicted and fined for selling this adulterated drug.

Mr. B. S. Levin of Los Angeles was charged with selling fake aspirin to three druggists in San Jose. One case was tried and Mr. Levin was convicted by a jury. The defendant was fined \$500, and was given a jail sentence of six months, both of which are the maximum under the California Pure Drugs Act. Mr. Levin appealed the case to the superior court, and lost. The fine was paid and Mr. Levin is now in the county jail serving his term. In passing sentence the judge took into consideration the fact that Mr. Levin had swindled a great many druggists throughout the state, many of whom had been fined in court for selling the drugs bought from him.

Bitters.

	Year ending June 30, 1915.	
1 sample legal.	No sample illegal.	Total 1.
	Year ending June 30, 1916.	
No sample legal.	1 sample illegal.	Total 1.
One sample analyzed and found illegal; alcohol not being declared.		

Boneset.

	Year ending June 30, 1915.	
1 sample passed.	1 sample illegal.	Total 2.
The illegal sample was infested with insects and unfit for use.		

Camphor Compounds.

	Year ending June 30, 1915.	
35 samples legal.	19 samples illegal.	Total 54.
	Year ending June 30, 1916.	
25 samples legal.	25 samples illegal.	Total 50.

These samples were mostly camphorated oil and spirits of camphor. Some of the camphorated oils contained as low as 7 per cent of camphor. Some of the camphorated oils contained as low as 7 per cent of camphor when they should have contained 20 per cent. The illegal spirits of camphor samples were deficient in camphor.

Catarrh Cures.

	Year ending June 30, 1915.	
No sample legal.	1 sample illegal.	Total 1.
This sample was analyzed and found illegal. The claims made on the label were false and fraudulent.		

Cold Tablets.

	Year ending June 30, 1915.	
1 sample legal.	No sample illegal.	Total 1.

Consumption Remedies.

	Year ending June 30, 1916.	
1 sample legal.	No sample illegal.	Total 1.

Corn Remedies.

	Year ending June 30, 1915.	
2 samples legal.	1 sample illegal.	Total 3.

	Year ending June 30, 1916.	
1 sample legal.	No sample illegal.	Total 1.
One illegal sample contained ether, not declared on the label, and the label contained false claims.		

Cough Cure.

	Year ending June 30, 1915.	
1 sample legal.	2 samples illegal.	Total 3.
The illegal samples contained morphine, not declared on the label, and these labels bore false and fraudulent claims regarding the therapeutic properties.		

Digitalis, Tr.

	Year ending June 30, 1915.	
5 samples legal.	No samples illegal.	Total 5.

Gin.

	Year ending June 30, 1916.	
No samples legal.	4 samples illegal.	Total 4.
The labels on these samples contained false and fraudulent statements.		

Ginger, Essence.

Year ending June 30, 1915.		
1 sample legal.	1 sample illegal.	Total 2.
Year ending June 30, 1916.		
1 sample legal.	11 samples illegal.	Total 12.
The illegal samples were all deficient in strength.		

Hair Tonic.

Year ending June 30, 1915.		
No samples legal.	1 sample illegal.	Total 1.
Year ending June 30, 1916.		
No samples legal.	2 samples illegal.	Total 2.

The illegal samples were mislabeled on account of having false and extravagant claims in regard to their therapeutic effects. One of these samples was labeled "Hair-A-Gain," which would be interpreted by the ordinary purchaser to mean that the preparation would produce hair where it had ceased to grow. The statements on the label would also bear out this interpretation. The manufacturer, however, stated that the term, Hair-A-Gain, meant that if one has hair it is a gain in appearance and comfort.

Iodine, Tr.

Year ending June 30, 1915.		
2 samples legal.	2 samples illegal.	Total 4.
Year ending June 30, 1916.		
11 samples legal.	3 samples illegal.	Total 14.
The illegal samples were all deficient in strength; some contained no potassium iodide, while others were deficient in both potassium iodide and iodine.		

Magnesia, Citrate of.

Year ending June 30, 1915.		
2 samples legal.	2 samples illegal.	Total 4.
Year ending June 30, 1916.		
2 samples legal.		Total 2.
The illegal samples were not made in accordance with the U. S. Pharmacopoeia.		

Miscellaneous Remedies.

Year ending June 30, 1915.		
8 samples legal.	10 samples illegal.	Total 18.
Year ending June 30, 1916.		
8 samples legal.	12 samples illegal.	Total 20.
The illegal samples consisted of patent tonics, toothache drops, rheumatism remedies, skin remedies, etc., which contained false and fraudulent claims on the labels.		

Nitre, Sweet Spirits of.

Year ending June 30, 1915.		
18 samples legal.	90 samples illegal.	Total 108.
Year ending June 30, 1916.		
3 samples legal.	18 samples illegal.	Total 21.

The illegal samples, in each case, were more than 30 per cent below the standard strength; some of them being as much as 75 per cent below standard strength.

Many druggists complained, as in the case of aromatic spirits of ammonia, that sweet spirits of nitre could not be prepared and kept a reasonable length of time without excessive deterioration. However, a great many other druggists do prepare this preparation properly and have no difficulty in keeping it.

This laboratory prepared a large number of samples of sweet spirits of nitre on November 12, 1914. These samples were in 2-ounce amber bottles with rubber stoppers, and were kept in a dark room. One sample was analyzed each week until October 1, 1915, when the stock was exhausted. On this date the samples showed on analysis, 3.91 per cent ethyl nitrite, or a loss of .09 per cent of ethyl nitrite, which is only 3.21 per cent of the total strength. Other laboratories have had similar results in the keeping of this article and there appears to be no difficulty in keeping nitre if the ingredients are of the proper quality, and the preparation is properly made. It is important to have the alcohol neutral.

Nur Vomica.

Year ending June 30, 1915.

No samples legal.	3 samples illegal.	Total 3.
-------------------	--------------------	----------

These samples were deficient in strength.

Oils.

Year ending June 30, 1916.

2 samples legal.	8 samples illegal.	Total 10.
------------------	--------------------	-----------

The illegal samples consisted of:

- 1 sample castor oil, adulterated with a foreign oil.
- 4 samples of sweet oil, adulterated with cottonseed oil.
- 1 sample olive oil, adulterated with cottonseed oil.
- 1 sample aromatic castor oil, mislabeled as to manufacturer.
- 1 sample labeled—"New Life Oil—Greatest of all blessings; cures the sick—old and infant the same." etc., etc. The label on this sample contained many false and fraudulent statements.

Paregoric.

Year ending June 30, 1915.

2 samples legal.	1 sample illegal.	Total 3.
------------------	-------------------	----------

The illegal sample contained opium, which was not declared on the label.

Peppermint, Essence.

Year ending June 30, 1915.

1 sample legal.	7 samples illegal.	Total 8.
-----------------	--------------------	----------

The illegal samples were deficient in peppermint oil.

Salts, Epsom.

Year ending June 30, 1915.

20 samples legal.	No samples illegal.	Total 20.
-------------------	---------------------	-----------

Unofficial Drug Samples.

Year ending June 30, 1915.

15 samples legal.	11 samples illegal.	Total 26.
-------------------	---------------------	-----------

Year ending June 30, 1916.

22 samples legal.	18 samples illegal.	Total 40.
-------------------	---------------------	-----------

These illegal samples consisted of aspirin, cancer remedies, consumption remedies, tonics, kidney remedies, etc., the labels of which contain false and fraudulent claims.

STATE INSTITUTION SAMPLES. FOODS AND OTHER SUPPLIES FOR THE FISCAL YEARS ENDING JUNE 30, 1915, AND JUNE 30, 1916.

The State Board of Control inaugurated a system of checking the quality of supplies for state institutions. This was found necessary on account of abuses which they discovered in connection with deliveries to institutions. In former years it was not uncommon for dealers to submit an excellent sample of goods with their bid; later on when deliveries were made to the institution, a great many instances were found in which vastly inferior goods were supplied.

The present system includes detailed specifications and, wherever necessary, submission of samples with the bids. When the deliveries are made samples of the deliveries are submitted to the State Food and Drug Laboratory for analysis and examination, in order to compare such deliveries with the original bid samples.

This system has resulted in a wonderful improvement in the quality of supplies received at state institutions and has also resulted in a great saving of money to the state. During the fiscal year ending June 30, 1915, 1064 samples were analyzed and examined for the State Board of Control and for state institutions; 188 of these samples did not conform to specifications.

During the fiscal year ending June 30, 1916, 922 samples were analyzed or examined; 285 of these samples did not conform to specifications. Fewer samples appear for this year on account of the change in system. Formerly each institution submitted a complete set of bid samples while in this period one set only of bid samples for all institutions was analyzed. This system was adopted when the State Purchasing Department was inaugurated. The samples analyzed during these two

STATE INSTITUTION SAMPLES.

Year ending June 30, 1915.

Ammonia. One of the three samples analyzed was found materially deficient in strength.

Baking Powder. Two of the eleven samples analyzed were materially deficient in strength.

Baking Soda. Six samples were found pure.

Blankets. Fifty-three out of 159 samples contained excessive cotton, some samples containing more than 60 per cent cotton, while the specifications stated not more than 30 per cent.

Butter. Three of the five samples of butter analyzed were inferior in quality. The shipments represented by these samples were rejected.

Cereals. Thirteen samples were analyzed and passed.

Chocolate and Cocoa. Eight samples were analyzed and passed.

Cocoanut. One of the three samples analyzed was an inferior product and was rejected.

Coffee. Forty-four of the 182 samples analyzed did not meet with the requirements. The majority of these samples were among the samples submitted on bids and do not represent deliveries to institutions.

Coffee Substitutes. Twenty-six samples were analyzed and passed.

Condiments. Thirteen samples of catsups, sauces, etc., were examined and passed.

Cloth. Five samples of cloth for uniforms, etc., were analyzed and passed.

Cream of Tartar. Five samples were analyzed and passed.

Cream of Tartar Substitute. Four samples were analyzed and passed.

Cutlery. Twenty-two samples were analyzed and passed. These samples contained at least 10 per cent nickel in the blanks and conformed to specifications.

Eggs. Five of the seven samples of eggs analyzed did not meet requirements. The deliveries represented by these samples were rejected.

Extracts. Two of the eighteen samples analyzed were below specifications in strength and were rejected.

Fish. Two samples were analyzed and passed.

Flour. One sample of the twenty-one samples analyzed was below the requirements.

Fruit. Six samples were analyzed and passed.

Gelatine. Two samples were analyzed and passed.

Hair, curled. Six samples were analyzed and passed.

Jams and Jellies. Three samples were analyzed and passed.

Lard. One of the two samples analyzed was adulterated with cottonseed products.

Liquors. Three samples were analyzed and passed.

Leather. Five samples were analyzed and passed.

Oils, edible. Thirty-nine samples were analyzed and passed.

Oils, mineral and lubricating. One of the eighteen samples analyzed did not conform to specifications.

Pastes. Fifteen samples were analyzed and passed.

Rice. Three of the twenty-seven samples analyzed were coated with talc and glucose.

Salt. Four samples were analyzed and passed.

Soaps. Sixty-one samples of laundry soap, sand soap, toilet soap and liquid soaps were analyzed; thirty of these samples contained either excessive water or excessive filler, or both.

Soap Powders. One of the nine samples analyzed did not meet the specifications.

Syrups, table. Two of the ten samples analyzed did not meet the specifications.

Spices. Nine of the ninety-one samples analyzed were inferior in quality and were rejected.

Starch. Six samples were analyzed and passed.

Sugar. Two of the twelve samples did not meet the requirements of the specifications.

Tea. Twenty-two of the 163 samples analyzed did not meet the requirements of the specifications. Nearly all of these samples were included in the bid samples and did not represent deliveries to institutions.

Vegetables, canned. Two of the thirty-one samples did not conform to specifications.

Vinegars. Three of the twenty-six samples were adulterated and were rejected.

Year ending June 30, 1916.

Ammonia. Seven of the eight samples analyzed were deficient in strength, some of the samples containing not more than 20 per cent of the required strength.

Baking Powder. One sample was analyzed and passed.

Baking Soda. Two samples were analyzed and passed.

Baking Powder Phosphate. One sample was analyzed and passed.

Blankets. Twenty-six of the seventy-three samples analyzed did not conform to specifications. These samples contained excessive cotton.

- Seven.** Seven samples were analyzed and passed.
- Eight.** Four of the twenty-eight samples analyzed did not meet with the specifications. These samples were infested with weevil.
- Nine.** One of the ten samples did not conform to specifications—inferior in quality.
- Twenty of One.** One of the two samples did not conform to specifications.
- Twenty of Nine.** One of the nine samples did not conform to specifications; this was a sample labeled ground chocolate which consisted of cocoa.
- Twenty.** Two samples were analyzed and passed.
- Forty.** Fourteen of the forty-one samples analyzed did not conform to specifications.
- Forty.** Nine samples were analyzed and passed.
- Seventy.** Six of the seventeen samples did not conform to specifications; these samples consisted of various sauces etc., containing excessive bacteria and mold.
- Forty.** Three samples analyzed and passed.
- Twenty of Four.** Four samples analyzed and passed.
- Forty.** Five of the fourteen samples analyzed did not conform to specifications; the specimens presented by these samples were rejected.
- Forty.** Fourteen samples analyzed and passed.
- Forty.** Six samples analyzed and passed.
- Forty.** Five samples analyzed and passed.
- Forty.** Seven of the forty-four samples analyzed did not conform to specifications; these samples were deficient in protein and some contained excessive mineral matter. The specifications call for not less than 10.5 per cent of protein, while some of these samples ran below 8 per cent protein.
- Forty.** Three of the fourteen samples did not conform to specifications. These samples consisted of an inferior decomposed fruit.
- Forty.** Two samples were analyzed and passed.
- Forty.** Six samples were analyzed and passed.
- Forty.** One of the thirteen samples analyzed did not conform to specifications.
- Forty and Forty.** Two samples analyzed and passed.
- Forty.** One of the four samples analyzed did not conform to specifications; this sample contained poisonous products.
- Forty.** Four of the ninety samples analyzed did not conform to specifications; these samples contained excessive filler, such as glucose and mineral matter. The mineral matter consisted of barium sulphate and magnesium sulphate.
- Forty.** Seventeen samples were analyzed and passed.
- Forty.** One sample analyzed and passed.
- Forty.** One sample analyzed and passed.
- Forty.** One of the two samples analyzed was below standard.
- Forty and Forty.** Seven samples examined and passed.
- Forty.** Fifty-five samples were analyzed and passed.
- Forty.** Three samples were analyzed and passed.
- Forty.** Two of the twenty-three samples analyzed were coated with glucose and mineral matter.
- Forty.** One sample analyzed and passed.
- Forty.** One of the eight samples analyzed did not conform to specifications.
- Forty.** Fifteen of the forty samples analyzed did not conform to specifications; these samples contained excessive mineral matter in some cases and in others were deficient in sugar.
- Forty.** Eighty-five of the 149 samples analyzed did not conform to specifications; these samples contained either excessive water or excessive filler, or both.
- Forty.** Eleven of the twenty-two samples analyzed did not conform to specifications; these samples contained excessive water or excessive filler, or both.
- Forty.** Six of the eight samples analyzed did not conform to specifications.
- Forty.** Five of the forty-three samples analyzed were inferior in quality.
- Forty.** Five samples were analyzed and passed.
- Forty.** Ten samples were analyzed and passed.
- Forty.** Seven of the forty samples analyzed did not meet the requirements.
- Forty.** One of the nine samples analyzed did not conform to specifications. This was a sample of almond stringless beans, which contained excessive and tough strings.
- Forty.** Nine of the forty-two samples analyzed did not conform to specifications. Some of these samples consisted of imitation vinegar artificially colored and others consisted of cider vinegar adulterated with water.

DECOMPOSED FOOD CONDEMNED AND DESTROYED.

Year ending June 30, 1916.

Almonds	25	pounds
Anchovies	$\frac{1}{2}$	barrel
Butter	175	pounds
Cake mixture	4	packages
Cakes, small	2	packages
Cauliflower	22	barrels
Chickens	6	only
Chili pulp	200	gallons
Chopped meat	30	pounds
Codfish	20	pounds
Condiments	100	pounds
	15	jars
	29	bottles
Corn meal	700	pounds
Cranberries	1	barrel
Currants	34	pounds
Dill weed	7	bottles
	3	casks
Egg noodles	47	packages
Figs	448	packages
Flour	1,000	pounds
Hominy	54	pounds
Ice cream	4	gallons
Jelly	65	pounds
Miscellaneous canned goods	5,516	items
Miscellaneous cereals	445	packages
Olives	122	gallons
	94	bottles
Onions	14	barrels
Onion sauce	1	barrel
Peanuts	5	barrels
Pears	5,700	pounds
Peppers	220	gallons
	7	casks
	262	bottles
Pickles	55	barrels
Pork	25	pounds
Raisins	204	packages
	3	barrels
Relish, Mexican hot	1	case
Relish, sweet	1	barrel
Sauce	100	gallons
Sauerkraut	7,020	pounds
Shells, paste	38	packages
Shrimps	250	pounds
	50	pounds
Spices	42	packages
Syrup	34	barrels
Tomato—		
Catsup	21,231	bottles
Pulp	42	kegs
Tripe	2,008	barrels
Vermicelli	100	pounds
Vinegar	377	pounds
Walnuts	276	gallons
Worcestershire sauce	5	pounds
	16	barrels

COLD STORAGE GOODS CONDEMNED AND DESTROYED FOR THE
YEAR ENDING JUNE 30, 1916.

Abalone	100	pounds
Butter	600	pounds
Cheese	6	cases
Chickens	4,281	pounds
Chili peppers	2,450	pounds
Cranberries	72	pounds
Eggs	460	dozen
Fox meats, frozen	65,874	pounds
Fish	7,800	pounds
Frogs	17	pounds

COLD STORAGE FOODS CONDEMNED AND DESTROYED—Continued

1. 姓名: 李德全
 2. 性别: 男
 3. 年龄: 45
 4. 籍贯: 湖南长沙
 5. 职业: 教师
 6. 学历: 大学
 7. 婚姻状况: 已婚
 8. 子女情况: 一子一女
 9. 健康状况: 良好
 10. 兴趣爱好: 读书、散步
 11. 特长: 书法
 12. 座右铭: 宁静致远
 13. 自我评价: 为人正直, 待人诚恳
 14. 社会评价: 邻里和睦, 同事尊重
 15. 未来规划: 继续深造, 提升自我

WATER, AIR & COLD STORAGE

During the Year July 1, 1975 to June 30, 1976

SECRET - EYES ONLY - SECURITY 1, 2, 3

10	10	34,771.8	pounds
11	11	139,623	pounds
12	12	115,711	pounds
13	13	3,540	pounds
14	14		
15	15	1,500	pounds
16	16	1,090,033	pounds
17	17	1,211,120	tons
18	18		
19	19	388,223	pounds
20	20	177,947	pounds
21	21	377,300	pounds
22	22	115,000	pounds
23	23	450	pounds
24	24		
25	25	234,982	boxes
26	26	36	barrels
27	27	36	chests
28	28	91,745	pounds
29	29	40	crates
30	30	4,368	pounds
31	31	7,602	pounds
32	32	5,084	boxes
33	33	3,590	boxes
34	34	645,494	pounds
35	35	452	boxes
36	36	201,383	pounds
37	37	3,077	boxes
38	38	4	pounds
39	39	4,702	boxes
40	40	5740,616	pounds
41	41	306	boxes
42	42		
43	43	360	barrels
44	44	900,551	pounds
45	45	97,115	pounds
46	46		
47	47	1,779,839	pounds
48	48	412,924	pounds
49	49	8	barrels
50	50	74,628	pounds
51	51	6	barrels
52	52		
53	53	12	bales
54	54	4,637,016	pounds
55	55	1,350	rolls

U. S. - China Investment Co., 1915.

1967	1,605,516	pounds
1968	2,009,698	pounds
1969	367	pounds
1970	1,413	pounds
1971	1,100	pounds
1972	507,440	pounds
1973	465,075	pounds

MATERIALS IN COLD STORAGE—Continued.

Fish—		
Dried	268,031	pounds
Fresh	182,898	pounds
Pickled	323,920	pounds
Shell	4,460	pounds
Flour or meal	4,275	pounds
Fruits—		
Apples	366,400	boxes
Apples	7,327,800	pounds
Berries	415,207	pounds
Berries	90	cases
Berries	1	keg
Figs	8	boxes
Grapes	6,111	pounds
Grapes	565	boxes
Grapes	3	drums
Oranges	291	cases
Oranges	1,026	pounds
Peaches	35	cases
Peaches	3,641	pounds
Pears	135,749	pounds
Pears	36	boxes
Plums and prunes	5,420	pounds
Plums and prunes	14	boxes
Persimmons	8,385	pounds
Persimmons	187	boxes
Raisins	30	cases
Miscellaneous and unclassified	13,010,805	pounds
Lard	105	pounds
Liquor—		
Beer	230	barrels
Meats—		
Beef, pork, veal, mutton, sausages, etc.	3,980,856	pounds
Milk, dried	23,310	pounds
Miscellaneous materials—		
Leaves, bulbs, tobacco, oleomargarine, etc.	18,798	pounds
Nuts—		
Meats	121,683	pounds
Miscellaneous	2,212	pounds
Oil, salad	10	barrels
Poultry	109,650	pounds
Syrups	5	barrels
Vegetables—		
Peppers	58	cases
Potatoes	660	sacks
Miscellaneous	12,037,884	pounds

Quarter ending March 31, 1916.

Beverages—		
Cider	11	barrels
Butter	365,768	pounds
Cheese	964,108	pounds
Condiments	88,948	pounds
Confectionery	5,483	pounds
Eggs—		
Frozen	68,737	pounds
In shell	1,975,230	dozen
Fish—		
Dried	440,538	pounds
Pickled	333,400	pounds
Shell	1,000	pounds
Flour	250	pounds
Fruits—		
Apples	187,221	boxes
Berries	14,812	pounds
Grapes	510	pounds
Oranges	3,700	boxes
Pears	8,720	pounds
Miscellaneous	3,689,599	pounds
Lard	145,350	pounds
Liquor—		
Beer	310	barrels
Meats, sausages, etc.	4,258,811	pounds
Miscellaneous materials—		
Leaves, bulbs, mushrooms, etc.	74,405	pounds

MATERIALS IN COLD STORAGE—Concluded.

Nuts—		
Meats	300,706	pounds
Miscellaneous	2,544	pounds
Oil, salad	1,600	pounds
Poultry	830,978	pounds
Syrups, fountain	3,045	pounds
Sugar, maple	50	pounds
Vegetables—		
Potatoes	657	sacks
Potatoes	6,348	boxes
Celery	438	crates
Lettuce	358	crates
Sweet potatoes	15	crates
Miscellaneous	3,444,115	pounds

Quarter ending June 30, 1916.

Butter	1,641,018	pounds
Cheese	1,597,338	pounds
Condiments	89,960	pounds
Confectionery	5,483	pounds
Eggs—		
Dried or powdered	940	pounds
Frozen	431,630	pounds
In shell	4,455,750	dozen
Fish—		
Dried	442,801	pounds
Pickled	358,550	pounds
Shell	19,500	pounds
Fruits—		
Apples	7,828	boxes
Berries	66,020	pounds
Dates, figs, raisins	3,800	pounds
Grapes	680	pounds
Oranges	9,100	pounds
Peaches	14,520	pounds
Pears	25,550	pounds
Miscellaneous	468,886	pounds
Lard	698	pounds
Liquor—		
Beer	391	barrels
Meats and sausages	1,005,161	pounds
Miscellaneous materials—		
Mushrooms, leaves, etc.	5,465	pounds
Nuts—		
Meats	658,236	pounds
Miscellaneous	3,530	pounds
Poultry	493,183	pounds
Vegetables—		
Potatoes	1,078	sacks
Miscellaneous	76,540	pounds

The California Cold Storage Act permits the storage of food products for a period of twelve months. If further time is desired owners are required to make application for an extension of time. The goods are then examined by the State Board of Health, and if found in suitable condition, further extension is granted.

In all of the cases listed below the goods were in excellent condition and for this reason the time was extended as indicated.

List of Extensions of Time Granted for Materials in Cold Storage.

Material	Amount	Locality	Extension granted
Butter	1,560 pounds	San Francisco	9 months
Butter	3,600 pounds	San Francisco	7 months
Cheese	93 drums	Los Angeles	1 year
Cheese	54 cases	San Francisco	5 months
Cheese	12 cases	San Francisco	6 months
Cheese	462 pounds	San Francisco	6 months
Cheese	1,050 pounds	San Francisco	3 months
Cheese	900 pounds	San Francisco	6 months
Cheese	110 sacks	San Francisco	1 year
Cheese	604 pounds	San Francisco	6 months
Cheese	510 pounds	San Francisco	1 year
Cheese	1,300 pounds	San Francisco	8 months
Cheese	185 pounds	San Francisco	10 months
Cheese	7,875 pounds	San Francisco	6 months
Cheese	17,706 pounds	San Francisco	1 year
Cheese	20,367 pounds	San Francisco	1 year
Cheese	9,628 pounds	San Francisco	5 months
Cheese	389 pounds	San Francisco	5 months
Cheese	22,926 pounds	San Francisco	1 year
Cheese	28,096 pounds	San Francisco	7 months
Cheese	1,800 pounds	San Francisco	7 months
Cheese	4,000 pounds	San Francisco	10 months
Cheese	6½ dozen	San Francisco	6 months
Cheese	4½ cases	San Francisco	1 month
Cheese	129 Fardeaux	San Francisco	1 year
Cheese	15 tubs	San Francisco	1 year
Cheese	85 sacks	San Francisco	1 year
Cheese	151 cases	San Francisco	1 year
Cheese	112 cases	San Francisco	1 year
Cheese	125 sacks	San Francisco	1 year
Cheese	6 sacks	San Francisco	3 months
Eggs, dried	400 pounds	San Francisco	6 months
Eggs, frozen meats (in cans)		San Francisco	1 year
Eggs, frozen meats (in cans)	14,930 pounds	Los Angeles	4 months
Eggs, frozen meats (in cans)	1,724 pounds	Oakland	3 months
Fish—			
Anchovies	20½ dozen	San Francisco	1 year
Anchovies	50 dozen	San Francisco	1 year
Anchovies	10 barrels	San Francisco	6 months
Anchovies	9½ barrels	San Francisco	6 months
Anchovies	133½ dozen	San Francisco	1 year
Anchovies	80 dozen	San Francisco	1 year
Anchovies	46½ barrels	San Francisco	1 year
Apetit sild	21 cases	San Francisco	1 year
Caviar	2 cases	San Francisco	1 year
Caviar	3 cases	San Francisco	1 year
Oodfish	78/100 pounds	San Francisco	6 months
Oodfish	78/100 pounds	San Francisco	6 months
Oodfish	10 boxes	San Francisco	1 year
Oodfish	8 cases	San Francisco	1 year
Oodfish	4 cases	San Francisco	1 year
Oodfish	1 case	San Francisco	1 year
Eels, smoked	11 cases	San Francisco	10 months
Eels, pickled	7 boxes	San Francisco	2 months
Eels, pickled	10 dozen	San Francisco	6 months
Eels, pickled	20 crates	San Francisco	6 months
Eels, pickled	50 cases	San Francisco	1 year
Pinnan haddie	500 cases	San Francisco	1 year
Fish in tins	4 cases	San Francisco	1 year
Herring	4 cases	San Francisco	1 year
Herring	4 cases	San Francisco	1 year
Herring	200 crates	San Francisco	1 year
Herring	286 crates	San Francisco	1 year
Herring	160 barrels	San Francisco	1 year
Herring	77 barrels	San Francisco	1 year
Herring	26 half bbls.	San Francisco	6 months
Herring	290 crates	San Francisco	1 year
Herring	57 kegs	San Francisco	1 year
Lobsters	31 cases	San Francisco	1 year
Lobsters	175 cases	San Francisco	1 year

List of Extensions of Time Granted for Materials in Cold Storage—Continued.

Material	Amount	Locality	Extension granted
Lobsters	75 cases	San Francisco	1 year
Mackerel, salt	3 barrels	San Francisco	10 months
Mackerel, salt	56 barrels	San Francisco	1 year
Mackerel, salt	3 barrels	San Francisco	1 year
Mackerel, salt	11 barrels	San Francisco	1 year
Mackerel, salt	20 barrels	San Francisco	1 year
Mackerel, salt	26 barrels	San Francisco	1 year
Mackerel, salt	30 barrels	San Francisco	1 year
Mackerel, salt	61 barrels	San Francisco	1 year
Sardelles	60 kegs	San Francisco	8 months
Salmon	13 boxes	San Francisco	1 year
Salmon	17 barrels	San Francisco	1 year
Salmon	30 barrels	San Francisco	1 year
Sounds	6 barrels	San Francisco	1 year
Fruit—			
Apriquets	25 pounds	San Francisco	1 year
Apriquets	25 pounds	San Francisco	1 year
Apriquets	25 pounds	San Francisco	1 year
Apriquets	25 pounds	San Francisco	1 year
Apriquets	25 pounds	San Francisco	1 year
Figs	9 cases	San Francisco	6 months
Meat—			
Bacon	7 cases	San Francisco	1 year
Beef kidneys	670 pounds	San Francisco	8 months
Kids	580 pounds	San Francisco	4 months
Sausage	9 cases	San Francisco	1 year
Sausage	3 cases	San Francisco	2 months
Sausage	7 cases	San Francisco	9 months
Sausage	4 cases	San Francisco	1 year
Sausage	1 case	San Francisco	1 year
Sweetbreads	250 pounds	San Francisco	1 year
Sweetbreads	318 pounds	San Francisco	11 months
Sweetbreads	140 pounds	San Francisco	10 months
Mushrooms	24 cases	San Francisco	1 year
Nuts—			
Almonds	50 boxes	Los Angeles...	11 months
Almonds	420 pounds	San Francisco	1 year
Peanuts	7 sacks	Los Angeles...	9 months
Peanuts	3,920 pounds	San Francisco	1 year
Peanuts	5,600 pounds	San Francisco	6 months
Peanuts	3,700 pounds	San Francisco	6 months
Pecans	18 cases	Los Angeles...	11 months
Peppers—			
Dried	2 lots	Los Angeles...	15 months
Chili	4 sacks	Los Angeles...	1 year
Chili	24 sacks	Los Angeles...	1 year
Chili	1,961 pounds	Los Angeles...	1 year
Chili	7,676 pounds	Los Angeles...	1 year
Chili	4,876 pounds	Los Angeles...	1 year
Chili	2,304 pounds	Los Angeles...	1 year
Chili	12 sacks	Los Angeles...	6 months
Poultry	161 dozen	San Francisco	1 year
Poultry	117 dozen	San Francisco	1 year
Poultry	40 dozen	San Francisco	8 months
Poultry	38 dozen	San Francisco	8 months
Poultry (turkeys)	5,472 pounds	San Francisco	10 months
Poultry	78 dozen	San Francisco	1 year
Poultry	100 dozen	San Francisco	1 year
Poultry	62 dozen	San Francisco	1 year
Poultry	19 boxes	San Francisco	4 months
Poultry (ducks)	65 pounds	Oakland.....	4 months
Poultry (turkeys)	2,482 pounds	San Francisco	2 months
Raspberry pulp	Lot No. 2951	Los Angeles...	1 year

SUMMARY OF ANALYTICAL WORK.

July 1, 1914, to June 30, 1915.

Foods and Food Products.

Official.

Material	Legal samples	Illegal samples	Total
Baking powder.....	22		22
Beverages.....	40	16	56
Butter.....	8	1	4
Cereals.....	8		8
Cheese.....		1	1
Chocolate and cocoa.....	1	9	10
Coffee.....	7	2	9
Colors.....	8	1	9
Confectionery.....	42	3	45
Condiments.....	85	23	58
Corn.....	5	1	6
Cream.....	1		1
Eggs.....		1	1
Egg substitutes.....		4	4
Extracts.....	29	44	73
Fish.....	7	4	11
Flour.....	6	1	7
Fruits.....	11	2	13
Gelatine.....	6		6
Ice cream.....	27	12	39
Jams and jellies.....	2	3	5
Liquors.....	6	13	19
Meats and meat products.....	47	27	74
Milk.....	6	2	8
Milk, evaporated.....	94	50	144
Oil, edible.....	7	1	8
Olives.....	10		10
Pastes.....	1	10	11
Pastry fillers.....		4	4
Rice.....	5		5
Syrups, table.....	4	7	11
Syrups, soda water.....	5	49	54
Spices.....	71	9	80
Sugar.....	10	1	11
Vegetables, dried and canned.....	5	28	33
Vinegars.....	58	22	75
Water, drinking.....	1		1
Totals.....	585	351	936

Drugs.

Ammonia, aromatic spirits of.....	16	127	143
Arnica, tincture.....	3		3
Asafoetida powder.....		1	1
Bitters, ungarian stomach.....	1		1
Boneset.....	1	1	2
Camphor compounds.....	35	19	54
Catarrh cure.....		1	1
Cold tablets.....	1		1
Corn remedy.....	2	1	3
Cough cure.....	1	2	3
Digitalis tincture.....	5		5
Ginger, essence Jamaica.....	1	1	2
Hair tonic.....		1	1
Iodine, tincture.....	2	2	4
Magnesia, citrate of.....	2	2	4
Miscellaneous remedies.....	8	10	18
Nitre, sweet spirits.....	18	90	108
Nux vomica.....		3	3
Paregoric.....	2	1	3
Salts, epsom.....	20		20
Totals.....	118	262	380

SUMMARY OF ANALYTICAL WORK—Continued.

July 1, 1914, to June 30, 1915.

Foods and Food Products.

Unofficial.

Material	Legal samples	Illegal samples	Total
Baking powder.....	20	2	22
Beverages	2	1	3
Butter	2	—	2
Cereals	2	—	2
Chocolate and cocoa.....	1	—	1
Coffee	2	—	2
Coffee substitute.....	1	—	1
Color, artificial.....	2	—	2
Condiments	1	—	1
Extracts	1	1	2
Fruit	3	2	5
Honey	1	—	1
Liquors	6	1	7
Meats	1	2	3
Milk	1	—	1
Milk, evaporated.....	3	3	6
Miscellaneous	1	—	1
Oils, edible	1	—	1
Oils, mineral and lubricating.....	1	1	2
Pastes	1	—	1
Pastry fillers.....	1	—	1
Preservatives	3	—	3
Rice	2	—	2
Soap	—	1	1
Syrups	6	1	7
Spices	3	—	3
Wastes	3	—	3
Water	26	—	26
Totals	97	15	112

SUMMARY OF ANALYTICAL WORK—Continued.

July 1, 1914, to June 30, 1915.

Drugs.

Unofficial.

Material	Legal samples	Illegal samples	Total
Aspirin	3	—	3
Bitters	1	—	1
Boric acid.....	1	—	1
Camphor, spirits.....	2	—	2
Colic remedies.....	1	—	1
Corn cure	1	—	1
Iodine, tincture.....	1	—	1
Kidney remedies.....	—	2	2
Leaves, henna.....	1	—	1
Miscellaneous remedies	1	2	3
Nitre, spirits.....	1	4	5
Port, tonic.....	—	1	1
Rheumatism remedies.....	1	1	2
Salts	—	1	1
Skin ointment.....	1	—	1
Totals	15	11	26

SUMMARY OF ANALYTICAL WORKS—Continued.

June 30, 1914, to June 30, 1915.

Foods and Food Products.

Unofficial.

State Institutions.

Material	Conform- ing to specifi- cations	Not con- forming to speci- fications	Total
Ammonia	2	1	3
Baking powder.....	9	2	11
Baking soda.....	6		6
Blankets	106	53	159
Butter	2	3	5
Cereals	13		13
Chocolate and cocoa.....	8		8
Cocoanut	2	1	3
Coffee	138	44	182
Coffee substitute	26		26
Condiments	13		13
Cloth	5		5
Cream tartar.....	5		5
Cream tartar substitute.....	4		4
Cutlery	22		22
Eggs	2	5	7
Extracts	16	2	18
Fish	2		2
Flour	20	1	21
Fruit	6		6
Gelatine	2		2
Hair, curled.....	6		6
Jams and jellies.....	3		3
Lard	1	1	2
Liquors	3		3
Leather	5		5
Miscellaneous material.....	2		2
Oils, edible.....	39		39
Oils, mineral and lubricating.....	17	1	18
Pastes	15		15
Rice	34	3	37
Salt	4		4
Soap, laundry, sand, toilet, liquid.....	31	30	61
Soap powders.....	8	1	9
Syrups	8	2	10
Spices	82	9	91
Starch	6		6
Sugar	10	2	12
Tea	141	22	163
Vegetables	29	2	31
Vinegars	23	3	26
Totals	876	188	1,064

SUMMARY OF ANALYTICAL WORK.

July 1, 1915, to June 30, 1916.

Foods and Food Products.

Official.

Material	Legal samples	Illegal samples	Total
Baking powder.....		2	2
Baking powder substitute.....		1	1
Beverages.....	21	35	56
Butter.....	2	2	4
Bread.....	3	1	4
Cereals.....	4	2	6
Cheese.....	2	3	5
Chocolate and cocoa.....	2	4	6
Coffee.....	2	5	7
Coffee substitute.....		1	1
Condiments.....	47	266	313
Confectionery.....	19	6	25
Corn.....	2	2	4
Eggs.....	15	143	158
Egg substitute.....	1	7	8
Extracts.....	20	30	50
Fish.....	4	1	5
Flour.....	8	2	10
Fruit.....	6	6	12
Gelatine.....	1		1
Honey.....	3		3
Ice cream.....	14	2	16
Jellies and jams.....	4	5	9
Lard.....	3		3
Liquor.....	17	58	75
Macaroons.....		5	5
Meat and meat products.....	188	110	298
Milk.....	7	8	15
Nuts.....		4	4
Oils, edible.....	5	1	6
Olives.....	5	2	7
Pastes.....	33	33	66
Pastry.....	5	2	7
Pastry fillers, etc.....	1	3	4
Salt.....		1	1
Saltpeter.....		1	1
Soups.....	1		1
Spices.....	27	24	51
Sugar.....	1		1
Syrups, table.....	3	8	11
Syrups, soda water.....	6	123	129
Vegetables.....	3	7	10
Vinegar.....	27	13	40
Waters.....		1	1
Totals.....	464	980	1,394

SUMMARY OF ANALYTICAL WORK—Continued.

July 1, 1915, to June 30, 1916.

Drugs.
Official.

Material	Legal samples	Illegal samples	Total
Ammonia, aromatic spirits of.....	3	12	15
Aspirin.....	67	43	110
Bitter.....		1	1
Camphor compounds.....	25	25	50
Consumption remedies.....	1		1
Corn remedies.....		1	1
Gin.....		4	4
Ginger compounds.....	1	11	12
Hair tonics.....		2	2
Iodine compounds.....	11	3	14
Magnesia.....	2		2
Miscellaneous.....		2	2
Nitre compounds.....	3	18	21
Oils.....	2	8	10
Peppermint.....	1	7	8
Port.....		1	1
Quinine compounds.....		1	1
Rheumatism remedies.....		1	1
Salts.....	1		1
Sandalwood.....		1	1
Syrups.....	1		1
Skin remedies.....		1	1
Tonics.....		1	1
Veronal.....	5	1	6
Waters.....		2	2
Witch hazel.....	1	1	2
Totals.....	124	147	271

SUMMARY OF ANALYTICAL WORK.

July 1, 1915, to June 30, 1916.

Foods and Food Products.

Unofficial.

Material	Legal samples	Illegal samples	Total
Ammonia		1	1
Beverages	6		6
Bread	5		5
Butter	1	1	2
Coffee		3	3
Coffee substitute	1		1
Colors		4	4
Confectionery	3	1	4
Condiments	58	106	224
Corn	1		1
Cream		1	1
Cream of tartar	1		1
Eggs	1	1	2
Egg yolks	1		1
Extracts	10		10
Fish		1	1
Feed	3		3
Flour	26		26
Fruits		2	2
Jellies and jams	1	1	2
Liquors	9	4	13
Meats	4	3	7
Milk	7	3	10
Miscellaneous materials	6	1	7
Nuts		3	3
Oils	1	1	2
Olives	3	1	4
Paste	7	5	12
Pastry		1	1
Poultry foods	5		5
Preservatives	5	2	7
Rice		1	1
Saltpetre		1	1
Syrups	4	5	9
Soap	2		2
Soda water syrups		1	1
Spices		9	9
Vegpara	1		1
Vinegar	8	6	14
Waste			3
Waters			12
Totals	196	229	424

Drugs.

Alcohol	2		2
Aspirin	8	8	16
Camphor compounds		1	1
Cancer remedies		2	2
Consumption remedies		1	1
Ether compounds	2		2
Hair tonics	2	1	3
Miscellaneous	1	1	2
Oils	6	1	7
Quinine compounds		1	1
Tonics		2	2
Veronal	1		1
Totals	22	18	40

SUMMARY OF ANALYTICAL WORK.

July 1, 1915, to June 30, 1916.

State Institutions.

Unofficial.

Material	Conform- ing to specifi- cations	Not con- forming to speci- fications	Total
Ammonia	1	7	8
Baking Powder	1		1
Baking soda	2		2
Baking powder phosphate	1		1
Blankets	47	26	73
Butter	7		7
Cereals	24	4	28
Cheese	9	1	10
Chloride of lime	1	1	2
Chocolate, cocoa	8	1	9
Chrome	2		2
Coffee	27	14	41
Coffee substitutes	9		9
Condiments	11	6	17
Corn	3		3
Cream of tartar	4		4
Eggs	9	5	14
Extracts	13		13
Fish	6		6
Feed	5		5
Flour	37	7	44
Fruit	11	3	14
Gelatine	2		2
Hair, curled	6		6
Ink	18	1	19
Jellies and jams	2		2
Lard	3	1	4
Leather	45	45	90
Liquors	17		17
Lye	1		1
Mats	1		1
Milk	1	1	2
Miscellaneous materials	7		7
Oils	55		55
Paste	3		3
Rice	21	2	23
Sago	1		1
Salt	7	1	8
Syrups	22	18	40
Soap	64	85	149
Soap chips	4	18	22
Washing powders	2	6	8
Spice	38	5	43
Starch	5		5
Sugar	10		10
Teas	23	17	40
Vegetables	8	1	9
Vinegar	33	9	42
Totals	637	285	922

SUMMARY OF ANALYTICAL WORK—Continued.

July 1, 1915, to June 30, 1916.

Foods and Food Products.

Cold Storage.

Material	Number not in violation of California Pure Food Act	Number in violation of California Pure Food Act	Total
Butter		6	6
Cheese	1		1
Confectionery		1	1
Condiments	9	12	21
Eggs	21	207	228
Fish	21	2	23
Flour	3	1	4
Fruit	2	1	3
Jelly	1		1
Meats	8	21	29
Nuts	5	11	16
Totals	71	262	333

SUMMARY OF ANALYTICAL WORK.

For the Year Ending June 30, 1915.

Material	Legal samples	Illegal samples	Total
Food and food products, official	585	351	936
Drugs, official	118	262	380
Food and food products, unofficial	97	15	112
Drugs, unofficial	15	11	26
State institution	876	188	1,064
Totals	1,691	827	2,518

SUMMARY OF ANALYTICAL WORK.

For the Year Ending June 30, 1916.

Material	Legal samples	Illegal samples	Total
Food and food products, official	464	930	1,394
Drugs, official	124	147	271
Food and food products, unofficial	196	229	424
Drugs, unofficial	22	18	40
State institution	637	285	922
Cold storage	71	262	333
Totals	1,513	1,871	3,384

SUMMARY OF ANALYTICAL WORK.

For the Biennial Period.

Material	Legal samples	Illegal samples	Total
Food and food products, official	1,049	1,281	2,330
Food and food products, unofficial	292	244	536
Drugs, official	242	409	651
Drugs, unofficial	87	29	116
State institutions	1,513	473	1,986
Cold storage	71	262	333
Totals	3,204	2,698	5,902

REPORT OF THE CONSULTING NUTRITION EXPERT.

M. E. JAFFA, M.S.

The work of the Consulting Nutrition Expert has been conducted along two different lines: (a) consultation, conference, and correspondence; (b) investigation of the food problems of the state institutions.

For several years previous to 1915 the State Board of Control arranged with the State Board of Health to have all the food purchased for state institutions submitted to the Food and Drug Laboratory for examination. Samples accompanying bids are analyzed and awards made on basis of quality as determined by reports of the director of the State Laboratory. This work is annually carried out and has been productive of the best results. In addition to the initial examination, tests are also made on deliveries. Thus all purveyors of food supplies realize the state's attitude on the food question with reference to quality and that deliveries must correspond to bid samples.

It was, however, manifestly illogical and insufficient to provide high-grade raw materials and take no cognizance of the methods of storage, the mode of handling, cooking and serving such foods after they were purchased. Indeed a further canvass of the situation proved that in many instances the raw food deteriorated, or the cooked food was rendered unpalatable or indigestible by undesirable methods at some point along the line. Economy in purchasing may be quite offset by poor cooking and serving, which results not only in waste, but in an unnecessary and inexcusable hardship endured by the people fed.

Therefore in July, 1915, the Board of Control instructed the Consulting Nutrition Expert to visit all the state institutions and study the dietary and food conditions with a view to suggesting possible changes and improvements. In accordance therewith two or more trips have been made to each of the state institutions and reports rendered. The nutrition advisor visits all departments which relate in any manner to the commissary department and discusses the problems with the superintendent.

Considerable time is spent in the kitchen for the purpose of examining the facilities and equipment; the methods of cooking the different foods; of handling same subsequent to preparation and while waiting transference to the wards; the manner of serving; the cause of left-overs, if excessive, and the use made of them; the amount and kind of waste which goes to the farmyard.

Menus are discussed in detail with the chef and suggestions made and a number of recipes given with the object of furnishing the patients with a more varied and attractive bill of fare without appreciably increasing the cost.

Careful inspection is made of the refrigerating plant, its operation, handling of the stored foods in the various compartments, to the end that proper segregation of food shall be made and sanitary conditions prevail.

Special attention is given in the dining-rooms to the general appearance of the room; table; table setting; tableware; the serving of the food; the cutting of the bread (carelessness in this regard causing undue waste); the serving of meals on trays to bed patients; the supervision of the head attendant over patient help. As there is, in no hospital,

any provision made for the warming of dishes or for keeping food warm after its arrival at the wards, it is evident that the best efforts in the kitchen may be more or less nullified by the lack of proper equipment in the dining-rooms or pantries in the individual wards.

In order to get a real insight into the "why and wherefores" of conditions, it is necessary to be on "deck" from 5.00 a.m. to 6.00 p.m. or later, and even then two full days do not afford enough time to admit of being present at all of the wards during meal times.

A report of conditions which call for changes or improvements should not be construed into a criticism of any of the personnel of the respective institution. It is not to be expected that any part of the many institutions has reached such a degree of perfection that it can not be bettered, nor yet that *all parts* should spontaneously grow with the general growth and develop to a more modern standard. Special effort must be directed toward each department and it is necessary that the commissary department receive its full share of expert attention in order that it keep pace with the rapid development that has characterized the other departments of our state institutions.

There certainly can be no question in regard to the standard for a diet in the state institutions. If we are to look for proper feeding anywhere it should be in the dietaries of these people who are wards of the state. The federal government has set an example by its manner of feeding the army and navy and it would seem reasonable to expect the various state governments to follow suit. But there are many difficulties to be met and overcome before any complete standardization can be accomplished.

It is a comparatively easy matter to sit in an office and work out a dietary for an average man of middle age pursuing an active or sedentary mode of life, etc. It is easy to provide a proper nitrogen and mineral balance, but to put such a dietary into operation in a number of institutions, each housing from 1,200 to 2,000 inmates representing all varieties of past food habits and present needs; where the cook, the steward and other attaches have their past habits; where the plant and equipment and farm facilities vary and can only be improved gradually, demands an effort, in the direction of *evolution* rather than *revolution*. It is probable that here, as elsewhere, the law of evolution will not only bring about the "survival of the fittest" among cooks and other attaches, but will also prove an incentive to more thorough training of those persons desiring the positions of steward, housekeeper, and dietitian.

The aim of the work at present is to establish a more or less uniform dietary in all of the state institutions which are of a uniform character. It is unnecessary to say that the inmates of the hospital for the insane should have a different dietary than the inmates of a state prison. But it is, however, manifestly unfair that the diet of one group of the mentally disqualified should be grossly inferior to that provided for other groups of the *same class*. The problems in the separate institutions are very different and must be handled differently for some time, but there is no reason why they should not be quickly brought to a general level of equality. Not that it is intended to formalize all the character and individuality out of any of them, but to make them equally correct and equally good according to their legitimate differences. The next effort will be to raise the general level until a real standardization has been accomplished.

The advantages of repeated visits are many among which may be cited the following:

1. It is difficult for any person following a monotonous daily routine to keep up a high standard without some sort of stimulation to the putting forth of his best efforts. This stimulation is well supplied by the knowledge that he may be visited at any unexpected moment and also that his work will be compared with that of others doing a similar form of work in kindred institutions.

2. The adviser has an opportunity to observe and compare the results obtained from the use of different plants, equipment, methods, old and new, and thus be more justified in deciding between these and recommending the most efficient.

3. As the watchword used in working toward the standard is to be development and not upheaval, it is often advisable to be sure that one improvement has become fixed before suggesting the next.

4. The next step to be taken and how to take it can be judged better on the ground than from a remote office.

The result of this year's work is extremely satisfactory, due in large measure to the hearty cooperation on the part of the superintendents and officials concerned. Not only has a decided improvement taken place in many of the departments of most of the institutions, but the spirit of progress has been spread abroad with the result that the officials of several of the county hospitals and jails have asked for visits and suggestions for improvements. Thus it would seem that the work begun by the state will be followed by the county and it is to be hoped that in the near future even private institutions will fall into line so that in time California may feel justly proud of its manner of feeding dependents.

REPORT OF THE BUREAU OF TUBERCULOSIS.

E. L. M. TATE, Director.

The history of legislation dealing with the tuberculosis problem in California dates back to 1904. During the general awakening to the necessity of hospital care for the tuberculous, the eastern and middle western states made large appropriations, that have since doubled and trebled in amount, for state sanatoria.

A bill was introduced in the California legislature of 1904, asking for an appropriation of \$150,000 for a state sanatorium. The bill failed to pass. In 1907, the legislature passed a law requiring the registration of tuberculosis and an antispitting law was passed. Two thousand dollars were appropriated for the dissemination of knowledge to prevent the spread of tuberculosis. Nearly one million pieces of educational literature on tuberculosis were distributed to school children.

The State Board of Health was also empowered to contract for treatment of indigent tuberculous residents, in public or private sanatoria, the bill for their care to be met by the patients' home county. in view of the fact that there are no public sanatoria outside of the counties, making provision for their own tuberculous indigents and that the private institutions are unable to care for patients at a rate that the counties would be willing to pay, the Board of Health has never been able to place patients in outside institutions. The supervisors sticking to the letter of the law, are even unwilling to take their own residents, who are willing to pay their own expenses.

In 1911, the California Tuberculosis Commission was appointed by the State Board of Health. An appropriation of \$5,000 was made to carry on the investigation. The commission reported to the legislature of 1913, making recommendations, and presenting a constructive programme. The first step was the establishment of a Bureau of Tuberculosis, the director of the bureau to make inspection and have supervision over hospitals, dispensaries and other institutions caring for the tuberculous. The bureau, created by the legislature of 1913, carried an appropriation of \$7,500. This amount was too small to permit more than one inspection of hospitals and allowed only sufficient postage to carry on the administrative work of the bureau.

The example set by California resulted the following winter in the creation of the bureau of tuberculosis in the state boards of health of New York, Ohio and Wisconsin. The inspection of county hospitals making provision for indigent tuberculous patients brought to light two significant facts: first, more deaths from tuberculosis were recorded in nearly every county; second, that the hospitals were only serving as a place where the homeless, and often the tuberculous tramp, too ill to continue his journey, could be taken to die. The counties justified their lack of proper care by the fact that they were waiting to see what policy the state intended to adopt. Many of the counties, particularly in the northern part of the state, have no provision for the tuberculous. Conferences were held by the California Association for the Study and Prevention of Tuberculosis with the State Board of Health and others interested in the problem. The high death rate in the counties, the inadequate number of beds, the lack of proper buildings, medical attention and nursing care of the tuberculous,

coupled with the utter impossibility of caring for the large number of patients needing hospital care, made an adequate state institution, unless the appropriation was a million dollars, an impossibility.

In 1915, four tuberculosis measures were introduced in the legislature. Three bills of a similar nature called for an appropriation of \$100,000 for a state sanatorium. The other enlarged the duties and powers of the Bureau of Tuberculosis, authorizing a subsidy of \$3.00 per week per resident tuberculous indigent to be paid to counties maintaining hospitals or wards, that complied with the standard required by the Bureau of Tuberculosis, the director having the same powers of inspection and supervision as in the previous act of the legislature of 1913. The bill carried an appropriation of \$75,000; the sum of \$20,000 was set aside for the administration of the act, and \$55,000 for the subsidy to be paid the counties complying with the standards laid down by the bureau. After the passage of this act, the bureau was confronted with the task of standardizing separate buildings, pavilions or wards in large general hospitals, and rooms in almshouses. The standard must not only change the present system but also serve as a standard for buildings to be constructed in the future. That the present standard adopted by the State Board of Health has changed the county hospitals enough so that they rank with the first-class private and public sanatoria of the country, is no exaggeration. From a condition in which there was no medical attention, and frequently no nursing except what the patients gave each other, these subsidized hospitals have improved until now they are giving first-class care and treatment. In view of the fact that in many of the counties no provision is made in private hospitals for treatment of tuberculosis, coupled with the fact that sanatorium care in private institutions excludes the patient who can pay only \$1 per day, the subsidized hospitals now are confronted with requests from patients able to pay a small amount for care and treatment, and this demand must be met, since there are only four semiphilanthropic institutions in the state.

After the appointment of the present director in October, 1915, letters were sent to the chairmen of the thirty-nine counties having hospitals with tuberculosis departments or beds reserved for tuberculous patients. With these letters, which explained the new law, were sent application blanks for inspection of the hospitals. Seventeen counties immediately made application for inspection, the director making the inspection in the order of the applications.

In 1911, the San Francisco Board of Education passed a resolution requiring that all new school buildings have at least one or more rooms for open air school purposes.

Various local ordinances have been passed. The city of Los Angeles in May, 1915, by an overwhelming vote on Amendment No. Five, placed one visiting tuberculosis nurse for every hundred registered cases of tuberculosis under the health department, to assist in the clinics and to instruct and care for patients. San Diego also passed an ordinance providing for a visiting nurse for the tuberculous poor of that city.

In 1916, the San Francisco Board of Health secured \$5,000 for tuberculosis nurses.

In 1916, the health department of Los Angeles took over the work of the sixteen clinics and employed two physicians to be in charge of the clinics.

STANDARDIZATION FOR TUBERCULOSIS WARDS OR PAVILIONS OF COUNTY HOSPITALS.

In determining the eligibility of hospitals for the state tuberculosis subsidy, they will be graded by the State Board of Health, according to location, construction, treatment and care of patients, and diet.

Location and grounds—will count one to five points.

Construction and type of building—one to twenty-five points.

Treatment and care—one to thirty-five points.

Diet—one to thirty-five points.

A hospital must receive a total of eighty points to be eligible for the state subsidy.

Location.

Any buildings or pavilions to be constructed in the future must be on a part of the grounds separate from the general hospital. Counties contemplating construction must bear this in mind and consult with the bureau before locating their building. Accessibility, transportation, length of time in reaching the hospital, and its proximity to other county buildings will be the points on which location will be graded.

Buildings.

The bureau discourages the erection of an expensive type of building unless it is a part of a general plan for a large county or city and county hospital. In the smaller counties, inexpensive buildings have been erected to care for as many as forty patients for about \$14,000.

Buildings will be graded on their construction and on the type of building, also their capacity relative to the need of the tuberculosis poor of the county. They will be classified as separate buildings, pavilions, cottages, wards in a general hospital, "shacks" or tent houses.

Class A structure.

A separate building.—It must have proper accommodations for a head nurse; sufficient baths, toilets and lavatories for patients; a diet kitchen for preparing food which can not be transported; two kitchen sinks or adequate facilities for washing and disinfecting dishes. If the building is separate from the general hospital and run as a sanatorium, it must have an examination room. There must be isolation rooms for advanced cases; not less than one isolation room for every ten patients. In the wards, there must be a minimum distance between beds of 3 feet 6 inches. Wards must be sufficiently lighted, preferably by electricity. Wards need not be heated, but dressing rooms, bath-rooms and patients' dining-room must be heated in cold weather.

Class B structure.

A ward in the general hospital.—The requirements regarding equipment and sufficient isolation rooms and food will be the same as for Class A. Class B structures must have a separate dining-room for ambulatory patients.

Class C structure.

The "shack" type or tent house.—It can not be used except for earlier cases. Any erection of a "shack" or tent house will be discouraged unless a nursing force is provided adequate for giving patients the necessary care.

Equipment.

In structures of any of the three classes, the following requirements must be met: In buildings having over thirty-six (36) beds, one tub or shower bath for every twelve (12) patients; one lavatory for every six (6) patients; one toilet for every six (6) patients; two dental lavatories and two slop sinks for every thirty-six (36) patients; two kitchen sinks are desirable. The stove in the kitchen must be large enough so that if food is to be prepared there, it can be done without inconvenience.

There must be back rests for bed cases; ambulatory cases must be provided with inexpensive canvas reclining chairs. If trays are used, they must be kept clean. The more expensive aluminum trays last much longer than the common papier maché, which will not be allowed in the future. The use of granite iron dishes and tin spoons is discouraged.

Call bells must be provided in each ward; properly ventilated lockers must be provided for each patient; scales also must be provided.

Wards and rooms must be screened and wards and sleeping rooms must be canvassed. A platform or sun porch must be provided.

Treatment and care.

If there is not a resident staff connected with the hospital, a visiting staff must be arranged. This can be done through the County Medical Society. There must be one interne for every fifty patients. Daily records must be kept. There must be a complete examination on admission and frequent subsequent examinations. The diagnosis and type of tuberculosis must be recorded and the complete record of the patient must be kept where it is accessible to the representative of the State Board of Health. Temperature must be taken four times a day and accurate charts must be kept.

Nursing.

In Class A buildings there must be one registered nurse who has had special training in tuberculosis nursing, and one nurse for every sixteen patients; also one orderly. In Class B buildings nursing must be supervised by the superintendent of nurses, one pupil nurse provided for every sixteen patients.

Admission.

The admission blanks furnished by the State Board of Health must be filled out in full and sworn to by the patient and the superintendent of the hospital.

Care of patients.

Adult patients must be segregated as far as possible, according to the stage of the disease. Bed cases must be placed in the smaller wards, so that it will be convenient for dying cases to be taken into the isolation

rooms. Children must be segregated in a small ward of their own. Bedding must be disinfected after death or removal of each patient. Patients needing extra heat at night must be given hot water bottles or soapstones.

Property of patients.

Provision must be made for the safe storage of any valuables or money deposited by the patient.

Food.

Care must be taken in handling and serving food for patients so it will be attractive. There is an enormous waste of food in hospitals, due to the fact that patients frequently can not eat the food served them. It must be remembered that patients suffering with tuberculosis nearly always have serious stomach disturbances and fickle appetites, and the serving of food to these patients must be done with this in mind. If the food is to be transported from the general hospital, it must be sent over in a fireless cooker or reheated before being served.

Tea must be made in the diet kitchen, and coffee, if sent from the general hospital, must be hot, when served. We recommend that coffee and toast and eggs be prepared in the diet kitchen.

A suggested diet list will be submitted by the State Board of Health.

San Joaquin County Tuberculosis Hospital.

San Joaquin County was visited first. The building was in fair condition, but the nursing, food and medical attention was inadequate in every way. A conference was held with the supervisors and superintendent of the hospital and the necessary changes discussed. The board of supervisors at once agreed to make the changes, *i. e.*, a diet kitchen for the second floor, also a utility closet, and an additional bathroom for the first floor. Two graduate nurses besides the pupil nurses from the general hospital were added to the nursing service, as well as an orderly and a dietitian. Patients on entering were given a complete physical examination. The food now is excellent and the people of San Joaquin County are to be congratulated upon the splendid way in which this hospital is run. The subsidy was granted February 5, 1916.

Fresno County Tuberculosis Hospital.

The director, prior to her appointment, when executive secretary of the California Association for the Study and Prevention of Tuberculosis, appeared before the grand jury in December, 1914, and urged the establishment of a new building for Fresno County's indigent tuberculous patients. The grand jury made the recommendation to the supervisors, and in November, 1916, the building was finished. For the amount of money expended, it probably gives as good care as many buildings costing three times as much. No private institution has provided any greater comfort. A physician spends half of every day there, and there are also two graduate nurses and an orderly. Ten beds had in the beginning seemed adequate for women patients, since no provision had been made previously. By July, 1916, the number of women patients had increased so, that the twenty-bed ward

for men had to be given over to the women patients. The Fresno building has excited favorable comment everywhere; it has a capacity of forty-eight beds, which undoubtedly will have to be increased soon. It was subsidized April 1, 1916.

Los Angeles County Tuberculosis Hospital.

Los Angeles County applied for inspection, and while the tuberculosis wards were in good condition and the patients received proper care and medical attention, the overcrowded condition of the hospital and the long waiting list made the subsidy impossible. The director asked the supervisors for \$5,000 to erect a temporary building for ambulatory patients; this request was granted and a comfortable thirty-bed building provided. The building used every available bit of ground at the hospital. It was subsidized February 5, 1916, December 2d 23 more beds were subsidized in the women's ward.



Ward in the San Joaquin County Tuberculosis Hospital, the first hospital in California to receive the state subsidy.

Alameda County.

In February, 1916, inspection was made at the Alameda Infirmary. The present building for the tuberculous accommodated only seventy-five patients. Considerable time and care was spent in the endeavor to find an available site at the present hospital. At the director's request, the ground was surveyed, but no site was available, so that in March a report was submitted to the supervisors, urging them to obtain a site in the hills, where a separate institution could be erected. Fortunately, in a few weeks, a site was found, ideal in every respect.

The land was purchased and plans drawn to erect a modern sanatorium to cost \$104,000. Too much credit can not be given to the supervisors of Alameda County for this willingness and cooperation to establish the first sanatorium of the kind in the state, nor to the other county officials and the Alameda Society for the Prevention of Tuberculosis and the Alameda Public Welfare Commission. Provision will be made for at least 140 patients. There will be an administrative building, an infirmary, sleeping pavilions for the men patients, a workshop, a children's building with a nursery and an open air school, besides a cottage for the nurses and quarters for the resident physician. The women patients are to be cared for in private rooms in the Infirmary. This institution will be ready some time in the early spring of 1917.

Marin County.

At the request of the Marin County supervisors, the quarters for the tuberculous were inspected in April. Provision for these patients consisted of tent houses; there was no nursing care except that done by patients and most of the patients prepared their own meals. A building to care for men and women patients was suggested; plans were drawn following this visit. They were immediately accepted by the bureau. The building which is now completed has private rooms with adequate baths and toilets, one wing provided for men and the other for women. It will accommodate 12 patients. In the center are the nurses' living quarters, with a kitchen and combination dining and sitting room. This building will be subsidized as soon as furnished. It fills a much needed place in this county where so many younger patients seem to need care and treatment.

San Francisco.

Conferences have been held in San Francisco in connection with the overcrowded condition of the tuberculosis wards of the City and County Hospital. Repeated inspections were made to ascertain what could be done to relieve the situation. The superintendent of the hospital and the director appeared before the supervisors and asked for \$6,600 to remodel two buildings. This was granted. A second story was added to one of the buildings used for male patients, examination rooms, nurses' stations, a number of isolation rooms, with the required number of baths, toilets and lockers added to make it come up to the standard required by the bureau. Forty-three beds were subsidized July 1, 1916, and 40 more in the women's ward September 2, 1916.

The women's ward was also remodeled, more isolation rooms were added, as were also lockers, the bed capacity has been increased, and the buildings painted. Additional nursing service was furnished and several minor improvements were made in accordance with the recommendations of the bureau.

Shasta County.

From the north came a request for immediate inspection. Shasta County Hospital, with a bed capacity of eight, wished to apply for the subsidy. Inspection of the tent houses, in a dilapidated condition,

and building in which the tuberculosis patients were housed, showed that the subsidizing was impossible. The supervisors presented blue prints which were not quite adequate, and the plans were redrawn according to recommendations from the director. The county will soon have a building adequate to care for patients in any stage of the disease, also there will be private rooms with provision for the nurse in charge, similar to those of the Marin County Hospital. This building will soon be completed and subsidized. It will accommodate 12 patients.

Orange County.

Orange County was inspected the last of May. The building had been erected too near the general hospital. It was suggested that it be moved some distance away. It is a good structure with wide porches and large rooms, but the director was unable to recommend it for the subsidy because the building was not in charge of a trained nurse as required in the standards. The building has not been used enough to be appreciated.

Sacramento County.

Sacramento County was recommended for the subsidy in June. Many changes were made to comply with the standard; new furniture, new battleship linoleum for the floors, new kitchen arrangements, a sterilizer for the dishes, a change of diet and a graduate nurse were provided before it was recommended. The Sacramento County Tuberculosis Hospital's bed capacity is inadequate for handling its tuberculosis problem. At the state meeting of county supervisors at Redding in May, 1916, it was decided, subject to a favorable opinion from the Attorney General, that Sacramento and a group of northern counties would take advantage of the law providing for a joint county hospital and build a sanatorium. The opinion handed down was favorable and letters to that effect were sent to the supervisors of Sacramento, Placer, Yolo, Amador, El Dorado, Contra Costa, Tuolumne, Nevada and Plumas counties. A committee on sites and building has been appointed and by the spring of 1917 this building will be under way. It will provide for a large group of patients who could not be cared for unless under such an arrangement. Counties in the north could continue to justify their lack of care by the fact that they could not afford to maintain a hospital or ward for their tuberculous patients, but with a joint county hospital, such as is contemplated, these patients can be properly cared for at a small expense to the county from which they come. A similar effort will be made in some of the counties in the southern part of the state, principally San Luis Obispo, Monterey, Ventura and Santa Barbara. Having this joint hospital in view, the inspection of some of the hospitals was deferred. Sacramento County was subsidized July 1, 1916.

Santa Clara County.

San Jose was inspected in June. The hospital needed more beds. Some changes in the kitchen and baths were necessary and new lockers were needed. The director suggested the changes but asked for another building. The supervisors and superintendent of the county hospital

felt that another building was necessary in order to take care of all their patients. So the plans have been approved for a splendid building that will more than double the present bed capacity.

San Diego County.

The San Diego County Tuberculosis Hospital has been inspected. It is one of the most crowded in the state and is inadequate in every way. It was decided not to make any recommendations until the bond issue was over. The director, with others who were interested, campaigned the county, but the bond issue for both roads and hospital was lost. The campaign was not without its good effect. The supervisors were willing, and the director urged them to consider a separate institution as Alameda had done. A committee was appointed to look for a suitable site.

Tuberculosis Dispensaries Established.

Many visits of inspection and conferences have been necessary to bring about these results. Not all of the hospitals that asked for inspection have been inspected. They have not been for the reason that the bureau was waiting for the development of the hospitals in the counties having the greatest problems. Along with the inspections of hospitals, has come the establishing of dispensaries, when they have been needed, and the installing of visiting nurses to supervise dispensary cases in their homes.

San Bernardino Tuberculosis Nurse.

Repeated visits to the San Bernardino County Hospital demonstrated the necessity, not only for a new hospital, but also a visiting nurse. Through the cooperation of the California Association for the Study and Prevention of Tuberculosis, a nurse was placed in San Bernardino for four months. The city has now made an appropriation to continue the work. With the cooperation of the agents of the State Board of Charities and Corrections and the attorney for the State Board of Health, inspection was made of the buildings at the San Bernardino County Hospital where the tuberculosis patients are kept. Conditions at this hospital beggar description. This county has the highest tuberculosis death rate and the worst hospital accommodations, of any county in the state. Recommendations were made to the supervisors, not with any idea of attempting to subsidize the building, as that was impossible, but to make it fit for human beings who were too ill to be sent elsewhere.

Tuberculosis Dispensaries and Nurses.

Dispensaries have been opened at Fresno and Sacramento. Additional dispensaries have been added to the Los Angeles service. The bureau has been able to secure for the various towns, help from the city or county or private individuals to help carry on the work.

At Sacramento, \$600 was secured from the city for the tuberculosis nurse. This is supplemented by a contribution of \$1,200 from a private individual interested in the work; \$900 was secured from the county for the visiting nurse and the clinic.

At Fresno, the city commissioners voted money toward the support of the clinic and a nurse was placed there to work under a committee of the Women's Club.

Marin County is meeting its needs through the establishment of a rural visiting nurse.

The agitation for more nurses will be continued, as will also the work with the Board of Education for more open air schools for children who are predisposed to tuberculosis.

The bureau had the direction of the work of the Dohrmann Memorial nurse, who spent four and a half months in Placer County inspecting the physical condition of the school children. So successful was this work, which is real preventive tuberculosis work, that nine counties applied for the services of a nurse. A temporary appointment was made for two months for the bureau to do some much needed work in a northern county.

Federal Tuberculosis Law Advocated.

Coupled with the campaign for better hospital care for resident indigent tuberculous patients, the bureau has carried on an active campaign by correspondence, all over the United States, to secure the passage of the "Kent Bill," which provides federal aid for certain hospitals reaching a standard of care and treatment, required by the Public Health Service. The objects of the bill consist mainly of three points: first, an effort to make it possible for hospitals caring for non-resident indigents to give that indigent proper medical care. To do this is more expensive than the average hospital in a county could or would attempt, since the southwest is deluged at certain seasons of the year with patients, many too ill or too poor to return home. They are a constant menace. This bill aimed to make it possible for the government to subsidize hospitals so these patients might be cared for. Second, many a patient lured on by that intangible something called climate, has tried the climate only to learn to his sorrow that much more was necessary to effect a cure. The bill provided transportation of the patient to his home state, provided he could receive care in an institution there. The opponents of the bill lost sight of the fact that this was bound to act as a boomerang and compel states with a limited number of beds for tuberculous patients to increase the number. The bureau is convinced that one of the causes of migration is frequently the long waiting list in institutions, coupled with the fact that in many instances the patients when finally able to gain admittance, were unable to do so because they were no longer first stage cases. The Kent Bill has been favorably reported out of both houses of congress. It is the first recognition that has been made by the federal government of the tuberculosis problem. The bill will be the means of removing thousands of patients to hospitals who are now centers of infection.

Length of Residence of the Tuberculous.

The tables below show California's tuberculosis problem by length of residence for selected cities. A careful study of this will show that California's real problem lies with that group who have been in the state for life or ten years and over; this is particularly true north of Tehachapi.

Average Per Cents in Five-Year Period for Deaths from Tuberculosis Classified by Length of Residence in California for Selected Cities.

	Annual average per cent distribution of deaths from tuberculosis, 1911 to 1915				
	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
California	8.8	26.7	26.7	27.9	9.9
Freeholders' charter cities.....	8.7	27.6	27.4	27.1	9.2
Rest of State.....	8.9	25.5	25.7	29.0	10.9
Selected cities—					
North of Tehachapi:					
San Francisco	3.3	14.3	28.6	39.8	14.0
Alameda	3.5	17.8	38.1	38.2	2.4
Berkeley	9.5	16.5	33.7	39.6	0.7
Oakland	3.0	18.9	30.2	42.8	5.1
San Jose	3.5	14.0	33.0	46.7	2.8
Fresno	9.0	22.9	31.3	29.7	7.1
Sacramento	4.7	16.5	28.8	31.6	18.4
Stockton	2.3	16.2	38.4	29.8	13.3
South of Tehachapi:					
Los Angeles	13.3	42.4	24.7	12.2	7.4
Pasadena	18.1	46.3	25.4	9.4	0.8
Riverside	15.2	39.8	25.2	15.2	4.6
San Bernardino	15.3	37.1	20.9	10.5	16.2
San Diego	20.2	38.7	25.3	12.8	3.0
Santa Barbara	6.0	24.8	23.7	42.7	2.8

Counties in Process of Building that Will Operate Under the Subsidy.

Alameda.....	Livermore	140 beds
Santa Clara.....	San Jose.....	60 beds
*San Francisco.....	San Francisco	250 beds
San Diego.....	San Diego.....	66 beds
Los Angeles.....	Los Angeles	300 beds

816 beds

Placer, Yolo, Amador, El Dorado, Solano, Contra Costa, Sacramento, Tuolumne, Nevada and Plumas counties are committed to a joint county hospital operating under the subsidy. This will be in operation by July, 1917, and increase the bed capacity—200 beds.

With these several hospitals established and provision made for the patient who can pay, if not all, at least in part for his maintenance, the needs of a large group of patients needing hospital care, including those who, at present, can not be cared for in the county hospitals because they are not and do not wish to become county charges, will be met. Seventy-five per cent of the deaths occurring in this state are among the group earning less than \$1,000 per year, and 27 per cent of the orphans cared for by the state were deprived of their parents through tuberculosis. This shows how the long period of expensive illness compels the state later to care for dependents. The state's plan of giving adequate care and treatment in institutions near the patients' homes, where they can see their families and, at the same time, not be centers of infection, means that the source of infection is removed

*New hospital with no additional bed capacity but excellent accommodations.

and the families are thus protected. The amount saved by the family and the amount of money saved the community can not be reckoned. California has adopted the policy of caring for the many near their homes rather than the few in a distant state institution. When sufficient beds are established in the counties for the second and third stage cases, then the state can provide convalescent camps or a colony for incipient cases.

Educational Work.

The bureau has distributed over 30,000 pieces of educational literature. The book of instructions to patients, "What You Should Know About Tuberculosis," the "Physician's Note Book" on the diagnosis of tuberculosis, the "Don't" cards printed in nine languages, a series of antispitting cards for factories and shops and also street cars, and another series, printed in Italian, Spanish and Armenian.

Requests for copies of our educational literature, the Standard for Hospitals, the Dietary and the Regulations, are received constantly from all over the United States and Canada. This Board of Health is the first in the United States to furnish a standard for hospitals. The parcel post exhibit on tuberculosis has been in constant use in the rural schools and farm centers. A second exhibit is now ready dealing entirely with the work on the prevention of tuberculosis in California.

Reported Cases of Tuberculosis.

The constant nagging at health officers and physicians to report living cases has resulted in the registration of 6,000 cases from July, 1915, to July, 1916. The bureau needs the registration for many reasons, and since the law requires this reporting and the State Board of Health has ordered the records of cases closed to the public, it is hoped that more physicians will comply with the law.

Many meetings have been held during the year with the women's clubs throughout the state. Conferences have been held repeatedly with the various tuberculosis societies in the state. Addresses have been given at school trustees' meetings and several county institutes. The director spoke at the state meeting of the supervisors. Meetings have been held with the labor unions also. But the aim of the bureau at the present time must be two direct points of attack; one on the preventive side—to continue the educational campaign, with the education of physicians, nurses, school children and the patients—the other to continue the medical inspection of school children for minor physical defects. Second, to provide as rapidly as possible in every section of the state, a sufficient number of hospital beds for patients suffering in any stage of the disease. These hospitals will make it possible to bring about the proper care of all tuberculosis patients in each county. The semiphilanthropic institutions, the Barlow Sanatorium at Los Angeles, Arequipa in Marin County, La Vina near Pasadena and Duarte have been inspected. They are carrying a great burden of work that must be done by the counties as rapidly as possible.

Table of Subsidized Hospitals.

	1915—Number of Beds	1916—Number of Beds
San Joaquin-----	40	*44
Fresno-----	18	‡48
Los Angeles-----	250	†280

Number of Beds in County Institutions Operating Under the Subsidy.

San Joaquin-----	41
Fresno-----	48
Los Angeles-----	53
Sacramento-----	40
San Francisco-----	83
	<hr/> 258

The Interior Department has been appealed to, to establish a hospital for Indians suffering with tuberculosis, and at the request of the commissioner, the bureau has recommended a site at North Fork near the Indian Mission.

*Increase in bed capacity not a notable one, but the subsidy has made this hospital first class.

‡Thirty extra beds as a result of the subsidy.

†New building.

REPORT OF THE BUREAU OF REGISTRATION OF NURSES.

By ANNA C. JAMMÉ, R.N., Director.

Introduction.

The act authorizing the examination and certification of graduate nurses became effective October 14, 1913. During the first ten months, or until July 1, 1914, nurses were registered without examination and received certificates, who showed evidence of having graduated from a reputable training school connected with a general hospital. During this period 4,831 nurses received certificates as "Registered Nurses."

With the beginning of the biennial period July, 1914, applicants for registration were obliged to show satisfactory evidence of having graduated from an accredited school for nurses and to pass the examination conducted by the board. It, therefore, became necessary to inspect and accredit the training schools.

Inspection of Training Schools for Nurses.

Inspection of schools was commenced July 6, 1914. From this date to July, 1915, 81 schools were inspected. From July, 1915, to July, 1916, 73 schools were inspected and a total of 86 inspections made. The inspection includes the following points:

(1) Character of hospital with which school is connected, whether general or special; (2) capacity and daily average number of patients; (3) nature of services, as medical, surgical, obstetrical and children's services; (4) equipment; (5) educational requirements for admission of students; (6) number and qualification of nurse instructors; (7) equipment for teaching as class rooms, demonstration rooms, library, diet kitchen, laboratory, etc.; (8) nature and amount of instruction, and plan followed in practical instruction.

Report of each inspection is made to the State Board of Health.

Accrediting of Training Schools.

On inspection, 73 schools were found to meet the minimum requirements and have been placed upon the accredited list. Nine schools were found not to meet the requirements, and were, therefore, not accredited.

Students in Training.

The number of students in training in the 73 accredited schools are 2,465. The educational status of these students is: graduates of a college or high school, 848; those having had but three years of high school, 278; those having had but two years, 435; those having had but one year, 308; those having attended grammar school, 484.

Requirements for Accredited Training Schools.

On April 8, 1916, the following requirements for accredited training schools were approved:

I. The hospital.

The hospital with which the school is connected shall have a capacity of not less than 50 beds and a daily average of 25 patients.

It shall provide for teaching and experience in surgical and medical nursing and in children's diseases. Each student must have the care of not less than six maternity cases including labor and delivery and the care of the infant.

It shall provide proper and adequate facilities for class instruction, such as a working library in which is included the more modern text and reference books, a skeleton, a manikin, or charts and such auxiliary apparatus as the hospital may be able to afford. The classroom must be well lighted and provided with student's tablet chairs and a good-sized blackboard. There must be a demonstration room and demonstration equipment as outlined in the pamphlet "Elementary Nursing Procedures." It shall provide a diet kitchen and the necessary equipment for teaching purposes. It shall provide the necessary laboratory equipment for the teaching of chemistry, bacteriology and analysis of urine.

II. Nurses' home.

Proper living conditions must be provided for the students. These must include a building erected for the purpose, or, where this is not possible, one suitable and adequate. Dormitories in upper story or basement of hospital will not be considered.

There must be individual sleeping rooms, or where rooms are sufficiently large, two may occupy the same room. Sleeping porches are strongly recommended in addition to the regular sleeping rooms. Sufficient furniture and one closet for each student.

One bath and one toilet for every ten students.

A reception room, a library, and when possible, a good-sized recreation room.

The nurses' home should be attractively but not expensively furnished. The service should be sufficient to maintain it in an orderly manner and provisions should be made for the social life of the school.

III. Dining rooms.

This room should be clean, well lighted and suitably furnished. The service should be prompt and efficient during the meals. There should be at least one waiter, or waitress, to every twenty students.

The diet should be adapted to students engaged in arduous and exacting studies.

IV. Faculty.

A sufficient force of instructors must be maintained who are competent to conduct the instruction herein specified and shall consist of:

1. Superintendent of the training school who is a registered nurse and must possess qualifications requisite for the administration of the school. She must have ability for teaching, capability for guiding the students in moral discipline and be able to maintain a high standard of educational and moral efficiency in the school.

2. A graduate night superintendent who is capable of assuming responsibility and of teaching the students under her supervision.

3. A full time nurse instructor in a school of over twenty-five students.

4. A graduate surgical nurse who has charge of the operating room.

5. A staff of medical and other lecturers.

6. A dietitian, who may or may not be, a graduate nurse.

V. Records.

There must be a good system of keeping records, showing in detail qualifications for admission, physical condition and character, instruction, attendance at lectures, classes, demonstrations, practice and efficiency in class and bedside work. This complete record of each student must be kept from time of admission to graduation. Immediately on the completion of the course, a copy of this record must be made on the form provided and forwarded to the State Board of Health at Sacramento.

VI. Affiliations.

Schools unable to meet the requirements of any one major subject will affiliate with another approved institution giving the required experience.

Arrangements for the time in affiliating institutions must harmonize with the course of instruction in each school and should not occur during the vacation period. All affiliations must be approved by the State Board of Health.

Examinations.

Five examinations for certificate as "Registered Nurse" have been held during the biennial period. The following table shows the dates, the number who entered, passed and failed:

Dates	Number entered	Passed	Failed	Percentage of successful applicants
December 5, 1914.....	46	42	4	91.14
May 1, 1915.....	86	84	2	97.58
October 13, 1915.....	138	104	34	75.40
February 8-9, 1916.....	119	104	15	87.54
June 13-14, 1916.....	197	152	45	77.31

Certificates.

Certificates as Registered Nurse have been issued:

Years	On examination	Without examination (Reciprocity)	Total
1914-1915.....	126	12	138
1915-1916.....	360	21	381
			519

Publications of the Bureau.

The following publications have been issued during the biennial period as special bulletins:

1. Register of Nurses.....	Jan. 2, 1915
2. Survey of Training Schools for Nurses.....	July 3, 1915
3. Elementary Nursing Procedures.....	Dec. 10, 1915
4. Requirements and Curriculum for Schools of Nursing.....	July 1, 1916
5. Annotated List of Text and Reference Books for Schools of Training	July 1, 1916

Development of the Work.

The work of the bureau has steadily increased during the past two years. The regular work of the office, as routine correspondence, preparation for examinations, correcting examination papers, etc., has grown month by month. The bureau has become, as it were, a clearing house for the state on questions pertaining to nursing. Inspection of schools, which constitutes a most important part of the usefulness of the bureau occupies about two-thirds of the time of the Director, and it has, therefore, been considered necessary that an assistant be appointed. An examination for the position was held by the State Civil Service Commission and from the eligible list submitted, Miss Elizabeth Pack, R.N., graduate of the Children's Hospital, San Francisco, was appointed by the State Board of Health as assistant to the director. She assumed her duties on July 1, 1916.

SUMMARY.

The work of the bureau is now past the initial stage of organization and is well established. The most cordial cooperation from the beginning, has been extended by the schools in endeavoring to meet the requirements. Interest in the examinations has been shown by the instructors and those interested in the students. The examination is a test of the ability of the student to practice nursing.

It is anticipated that the influence of this work will increase the efficiency of the student nurse in the hospital in caring for its patients because the student will be better taught both in the class room and at the bedside; also, that it will lead to a stronger development of the student for her work after she has finished her course.

REPORT OF BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

I. SUMMARY OF STATISTICS: 1915 AND 1914.*

SYNOPSIS.

Birth, Death and Marriage Totals.—The California birth total has much more than doubled since the first year's registration of 20,974 for 1906, having risen steadily to 46,012 for 1914, and 48,075 for 1915.

The excess of births over deaths first shown in 1911 was as great as 9,049, or 23.2 per cent, in 1915.

The death total, exclusive of stillbirths, has oscillated slightly since the start at 29,303 in 1906, being 37,537 in 1914 and 39,026 in 1915.

The marriages have fluctuated greatly from the total of 21,317 for 1906, numbering 31,902 for 1914, but only 31,451 for 1915.

In 1914 to 1915, births increased by 2,063, or 4.5 per cent, and deaths by only 1,489, or 4.0 per cent, while marriages decreased by 451, or 1.4 per cent.

The birth rate has grown steadily ever since 1906, while the death and marriage rates each fell at times in the ten-year period.

In 1914 to 1915 the gain in births was greatest for northern and next for central California, while the increase in deaths was somewhat greater for southern than for either northern or central California. The decrease in marriages appeared in all geographic divisions except San Francisco and southern California outside Los Angeles.

Increases appeared for forty of the whole fifty-eight counties in births, and for thirty-five in deaths, but for only twenty-five in marriages.

The rates of gain in births were over 10.0 in the following twenty-nine counties: San Benito, Orange, Tuolumne, Mariposa, Sutter, Del Norte, Imperial, Lassen, Plumas, Modoc, Merced, Ventura, Mendocino, Santa Barbara, Contra Costa, Yuba, Placer, Tulare, Nevada, Kings, Lake, Monterey, Santa Clara, Amador, Napa, Colusa, Marin, San Bernardino, and San Joaquin.

The increases in deaths were over 10.0 per cent in only eleven counties as follows: Plumas, Lake, Colusa, Yuba, Mono, Merced, Kings, Placer, Stanislaus, Napa, and Ventura.

There were gains in marriages of over 10.0 per cent in the following fifteen counties: Alpine, Trinity, Mono, Del Norte, Mariposa, Yuba, Plumas, Riverside, Nevada, Napa, Solano, El Dorado, San Joaquin, Madera, and San Diego.

For freeholders' charter cities as a class there was a decrease in births of 0.1 per cent but an increase in deaths of 5.8 per cent, while for all the rest of the state the rate of gain was 12.0 in births against merely 1.3 in deaths. The marked gains in births for the state outside chartered cities are due to notable completeness in birth returns for other

*NOTE.—The vital statistics are presented for calendar, instead of fiscal years, to correspond with the annual mortality reports of the Federal Census Bureau.

cities and towns first made separate birth registration districts under the new law of 1915.

Increases in births were shown by only fifteen of thirty-two chartered cities, but in deaths by twenty-three of these cities.

The fifteen cities showing gains in births were: Monterey, Grass Valley, Santa Barbara, Stockton, Salinas, Richmond, San Bernardino, Napa, Alameda, San Rafael, Watsonville, Santa Monica, Oakland, San Diego, and Pomona.

The increases in deaths exceeded the city average of 5.8 per cent in the following fourteen cities: Napa, Modesto, Stockton, Santa Rosa, San Luis Obispo, Monterey, Santa Monica, San Rafael, Berkeley, Richmond, Petaluma, Pasadena, Palo Alto, and San Diego.

Birth and Death Totals Compared.—The birth registration exceeded the death total in both 1915 and 1914 for all geographic divisions except only the coast counties of northern California, the total excess of births over deaths being as great as 9,049 or 23.2 per cent, in 1915, against 8,475, or 22.6 per cent, in 1914.

The excess of births over deaths for chartered cities was only 19.9 per cent in 1915, though 26.9 per cent in 1914, the corresponding figures for the rest of California being 28.3 in 1915 against only 16.0 in 1914.

More births than deaths were reported in both 1915 and 1914 for twenty-three cities as follows: Eureka, Napa, Petaluma, and Santa Rosa in northern California; San Francisco, Alameda, Berkeley, Oakland, Richmond, San Rafael, Palo Alto, San Jose, Watsonville, Fresno, Sacramento, and Vallejo in central California; and Los Angeles, Long Beach, Pasadena, Pomona, Santa Monica, Riverside, and San Diego in southern California.

The thirty-four chartered cities in 1915 and the thirty-two in 1914 reported altogether 59.4 and 62.1 per cent of the birth registration for the whole state, as compared with 61.0 and 60.0 per cent, respectively, of the California death total.

Birth, Death and Marriage Rates.—For 1915 and 1914, respectively, the California birth rates per 1,000 population were 16.8 and 16.7, the death rates 13.7 and 13.6, and the marriage rates 11.0 and 11.5. The latest birth rates mark the highest points attained since 1906, but the death rates for 1914 and 1915, like those for 1909 to 1911, stand below the high rates for 1912 and 1913 or for 1906 to 1908. The marriage rates for 1914 and 1915, like that for 1911, are between the maximum rates for 1912 and 1913 and the lower rates for 1906 to 1910.

The birth, death and marriage rates, especially births, are considerably higher for southern California than for central or northern California.

The rates in each case are generally higher for the metropolitan area than for the rural counties north of Tehachapi as well as for San Francisco than for the other bay counties.

The individual counties with birth rates above the state averages in both 1915 and 1914 were: Stanislaus, Sacramento, Madera, Fresno, Imperial, Orange, San Diego, Los Angeles, Lassen, Merced, and Yolo.

The counties with death rates above the general averages in both years were: Napa, San Joaquin, San Diego, San Bernardino, Santa Clara, Imperial, San Francisco, El Dorado, Sacramento, Orange, Nevada, Yolo, and Los Angeles.

Orange and Marin, near Los Angeles and San Francisco, invariably show by far the highest marriage rates. Other counties with marriage rates above the state averages in the last two years were: San Diego, San Francisco, San Joaquin, Imperial, Sacramento, and Lassen.

In 1915 the birth rate was about the same for chartered cities as for the rest of the state, 16.9 against 16.7, though in 1914 this rate was much higher within cities than outside them, 17.9 against only 15.0.

In both years, however, the death rate was considerably greater for chartered cities, 14.1 each year, than for the rest of the state, 13.0 in 1915 and 12.9 in 1914.

Between 1914 and 1915, while the death rate stood still both within and outside cities, the birth rate dropped sharply for chartered cities while rising greatly for the rest of the state. With the marriage rate decreasing in recent years the birth rate may have decreased actually also as indicated by figures for leading chartered cities, though any real decrease has been more than overcome by marked completeness in birth returns for smaller cities and towns under the new registration law.

The birth rates equalled or exceeded the city averages both years in Watsonville, Richmond, Modesto, Fresno, San Bernardino, Santa Rosa, San Diego, Sacramento, Santa Monica, San Luis Obispo, Long Beach, Petaluma, and Los Angeles.

The death rates surpassed the average for cities each year in Modesto, Stockton, San Bernardino, San Diego, Richmond, Santa Monica, San Luis Obispo, Santa Barbara, Santa Rosa, Long Beach, Eureka, San Francisco, Sacramento, Watsonville, and Grass Valley.

On the other hand, there were relatively low death rates in both 1915 and 1914 for Palo Alto, Berkeley, Monterey, Alameda, Pasadena, Oakland, Riverside, Vallejo, San Jose, Los Angeles, Petaluma, San Rafael, and Pomona.

INTRODUCTION.

Sources of Information.—The California laws of 1905 and 1915 for the registration of vital statistics require the prompt reporting of every birth, death or marriage occurring in the state by the immediate filing of a prescribed form of certificate for each such event with the proper local registrar for transmittal in monthly returns to the State Bureau of Vital Statistics. The local registrars for both births and deaths under the new registration law in effect from August 8, 1915, are the health officers of cities having freeholders' charters and the clerks in other cities and towns, city and town clerks having been local registrars for deaths alone under the former law of 1905. Each county recorder, besides being local registrar for all marriages anywhere in the county, is also local registrar for both births and deaths occurring outside freeholders' charter and all other cities and incorporated towns. County recorders as local registrars of deaths for the unincorporated portions of counties furthermore appoint subregistrars to receive death certificates and issue burial or removal permits at points remote from county seats.

The present California law of 1915 requires a physician or other person assisting at a birth to file a certificate, properly filled out, within thirty-six hours thereafter with the health officer for a birth occurring in any freeholders' charter city, with the clerk for a birth

occurring in any other city or incorporated town, or with the county recorder for a birth taking place in the outside or unincorporated portion of a county. To cover any case of a birth occurring without the attendance of a physician, midwife or nurse, the law of 1915 also requires that the fact of the occurrence of a birth shall be reported to the local registrar within ten days thereafter by the father or mother of the child, the householder or owner of the premises where the birth occurred, or the manager or superintendent of the public or private institution where the birth occurred, each in the order named.

As to deaths, the state law of 1915 like that of 1905 holds each undertaker responsible for obtaining and filing a satisfactory death certificate with the local registrar (or subregistrar) of the district where any death occurs prior to the interment or other disposition of the body, or within seventy-two hours after death, the statute forbidding any disposition of the remains except by authority of the local registrar's (or subregistrar's) permit obtainable only by the filing of a complete and satisfactory death certificate. Under the present law the local registrars for deaths are the same as for births with the addition as before of subregistrars of death for portions of rural registration districts.

With reference to marriages, the California law found in code amendments adopted in 1905 requires all persons who perform the marriage ceremony in this state to file the prescribed form of marriage certificate, properly filled out, with the county recorder as local registrar within three days after the performance by them of any marriage ceremony.

Indexing of Records.—The original certificates of births, deaths and marriages thus filed with local registrars each month are required by law to be forwarded to the State Registrar on the fifth day of the following month. In the State Bureau of Vital Statistics the births, deaths and marriages throughout California are indexed separately and systematically on appropriate cards sorted and arranged by names in alphabetical order carried to minute subdivisions. For the period from about July 1, 1905, when the system was established, to the end of 1915, the index cards for California aggregate nearly 400,000 for births, about 350,000 for deaths, and over 500,000 for marriages, the marriage index cards being made in duplicate and then sorted separately to cover both grooms and brides. Beginning with August, 1915, the birth index cards have also been made in duplicate and arranged alphabetically by the names of fathers and maiden names of mothers. For ten and a half years there are thus altogether 1,250,000 index cards on file in the state bureau as references to official legal records of children born, persons dead, and couples married in California.

Tabulation of Statistics.—In the State Bureau of Vital Statistics the statistical information on the original birth certificates there filed has been tabulated to the present time merely by direct tallying of certain items from the original certificates. Likewise, statistical data have been compiled as yet from the original marriage certificate simply by sorting and counting the certificates in selected groups. The birth and marriage tabulations are thus necessarily limited within a somewhat restricted range permitting no further expansion.

For deaths, however, tabulation cards have been in use since the organization of the state bureau in 1905 which allow a wide range in

the scope of statistical tabulations relating to mortality. In the California Bureau of Vital Statistics the statistical data on the death certificates are transferred to tabulation cards such as are used in the Federal Census Bureau by means of a punching machine. The tabulation cards are punched to show for each death the following particulars: Sex, color (or race), month of death, age, conjugal (or marital) condition, birthplace, birthplace of father, birthplace of mother (by countries for the foreign born), occupation, cause of death, and length of residence in California. Occupations and causes of death are necessarily designated by index numbers, the key for occupations being like that used in the Vital Statistics Division of the Federal Census Bureau, and the key for deaths agreeing with the International Classification of Causes of Death. Each tabulation card also shows, by certain holes punched according to a definite system, the registration district (the county and the freeholders' charter city or other city or town), as well as the local registered number of the certificate to which the card corresponds.

Although the tabulation cards are meant to be sorted and counted by electrical tabulating devices such as are used in the Federal Census Bureau and other statistical offices, the cards in the California Bureau of Vital Statistics have heretofore been sorted and tabulated only by hand. On this account the tabulations have necessarily been limited to causes of death, and, in addition, to only sex, race, nativity (of white decedents), age periods, occupations, and marital or conjugal condition. Because of the lack of clerical assistance it has also been impossible to make these detailed tabulations for leading cities or individual counties, but only for certain geographic divisions, data being published in some cases merely for the state as a whole. However, total deaths have been tabulated by causes for freeholders' charter cities as well as for all counties in both 1915 and 1914.

Geographic Divisions.—For convenience in tabulation the fifty-eight counties of California have been grouped in three main and eight minor geographic divisions. The three main divisions are northern, central, and southern California. The line between northern and central California has been drawn at the southern boundary of Placer, Sutter, Colusa, Napa, and Sonoma counties, or the northern boundary of El Dorado, Sacramento, Yolo, and Marin counties. This dividing line extends irregularly from Lake Tahoe to the Pacific Ocean somewhat north of San Francisco Bay. The line between central and southern California has been drawn at the southern boundary of Inyo, Kern, and San Luis Obispo counties, or the northern boundary of San Bernardino, Los Angeles, Ventura, and Santa Barbara counties. This line is familiarly located by Tehachapi pass.

In both northern and central California, divisions have been made between the coast and the interior counties. In each case the coast counties include some counties not actually contiguous to the Pacific Ocean but yet on the westward side of the Coast Range. Moreover, in central California, San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) have been made minor geographic divisions. Similarly, in southern California, Los Angeles has been

made a minor geographic division in contrast with the other seven counties south of Tehachapi.

The three main and eight minor geographic divisions are as follows, the counties in each group being arranged alphabetically for the sake of ready reference:

TABLE 1.—Main and Minor Geographic Divisions of California, with Counties Included in Each.

NORTHERN CALIFORNIA.			
<i>Coast counties.</i>			
Del Norte	Lake	Napa	Trinity
Humboldt	Mendocino	Sonoma	
<i>Interior counties.</i>			
Butte	Modoc	Shasta	Sutter
Colusa	Nevada	Sierra	Tehama
Glenn	Placer	Siskiyou	Yuba
Lassen	Plumas		
CENTRAL CALIFORNIA.			
<i>San Francisco.</i> (City and county)			
<i>Other bay counties.</i>			
Alameda	Contra Costa	Marin	San Mateo
<i>Coast counties.</i>			
Monterey	San Luis Obispo	Santa Clara	Santa Cruz
San Benito.			
<i>Interior counties.</i>			
Alpine	Inyo	Merced	Stanislaus
Amador	Kern	Mono	Tulare
Calaveras	Kings	Sacramento	Tuolumne
El Dorado	Madera	San Joaquin	Yolo
Fresno	Mariposa	Solano	
SOUTHERN CALIFORNIA.			
<i>Los Angeles.</i>			
<i>Other counties.</i>			
Imperial	Riverside	San Diego	Ventura
Orange	San Bernardino	Santa Barbara	

BIRTH, DEATH AND MARRIAGE TOTALS.

The State.—Under the laws of 1905 and 1915 for the registration of vital statistics in California, returns are now available for the ten calendar years, 1906 to 1915, inclusive. Figures for the state as a whole are summarized in the table which follows, giving the birth, death and marriage totals, together with the increase and rate per 1,000 population, for the ten-year period covered by the operations of the present system.

TABLE 2.—Birth, Death and Marriage Totals, with Increase and Rate per 1,000 Population, for California: 1906 to 1915.

Year	Total	Increase		Rate per 1,000 population
		Number	Per cent	
Births.				
1915	48,075	2,063	4.5	16.8
1914	46,012	2,160	4.9	16.7
1913	43,852	4,522	11.5	16.4
1912	39,330	4,502	12.9	15.2
1911	34,828	2,600	8.4	14.0
1910	32,138	1,256	4.1	13.4
1909	30,882	2,906	10.0	13.4
1908	28,077	3,403	13.8	12.7
1907	24,674	3,700	17.6	11.6
1906	20,974			10.3
Deaths.				
1915	39,026	1,480	4.0	13.7
1914	37,537	*1,062	*2.8	13.6
1913	38,599	1,800	5.1	14.4
1912	36,709	2,607	7.9	14.2
1911	34,012	1,614	5.0	13.7
1910	32,398	1,413	4.6	13.5
1909	30,985	*302	*1.0	13.4
1908	31,287	192	0.6	14.1
1907	31,095	1,792	6.1	14.6
1906	29,308			14.4
Marriages.				
1915	31,451	*451	*1.4	11.0
1914	31,902	519	1.7	11.5
1913	31,883	107	0.3	11.7
1912	31,276	3,973	14.6	12.1
1911	27,303	2,366	9.5	11.0
1910	24,937	2,020	8.8	10.4
1909	22,917	1,178	5.4	9.9
1908	21,739	*1,266	*5.5	9.8
1907	23,005	1,688	7.9	10.8
1906	21,317			10.5

*Decrease.

While the death and marriage totals for California have fluctuated somewhat in the ten years, each having decreased twice at long intervals, the birth total has grown steadily in successive years, rising from 20,974 in 1906 to 24,674 in 1907, 28,077 in 1908, 30,882 in 1909, 32,138 in 1910, 34,828 in 1911, 39,330 in 1912, 43,852 in 1913, 46,012 in 1914, and 48,075 in 1915. Beginning with 1911, moreover, the aggregate birth registration in California has exceeded the annual death total in increasing degree, the excess of births over deaths rising from 816, or 2.4 per cent, in 1911 to 2,621, or 7.1 per cent, in 1912, to 5,253, or 13.6 per cent, in 1913, to no less than 8,475, or 22.6 per cent, in 1914, and even to 9,049, or 23.2 per cent, in 1915. Stillbirths are excluded from birth and death tabulations in all cases throughout this report.

The death total, exclusive of stillbirths, rose from 29,303 for 1906 to 31,095 for 1907 and to only 31,287 for 1908, falling back to 30,985 for 1909 but then rising again to 32,398 for 1910, 34,012 for 1911, 36,709 for 1912, and 38,599 for 1913, falling a second time to 37,537 for 1914 and finally rising once more to 39,026 for 1915. The increase of 1,792, or 6.1 per cent, for 1906 to 1907 was followed by a gain of only 192, or 0.6 per cent, for 1907 to 1908 and a loss of 302, or 1.0 per

cent, for 1908 to 1909, the death total for 1909 being thus less by 110 than that for 1907. However, the increase of 1,413, or 4.6 per cent for 1909 to 1910, was succeeded by the still greater gains of 1,614, or 5.0 per cent, for 1910 to 1911, of 2,697, or 7.9 per cent, for 1911 to 1912, and of 1,890, or 5.1 per cent, for 1912 to 1913. The decrease of 1,062, or 2.8 per cent, for 1913 to 1914 was followed by the greater increase of 1,489, or 4.0 per cent, for 1914 to 1915.

The marriage total, beginning with 21,317 for 1906, rose to an early maximum of 23,005 for 1907, dropping then to 21,739 for 1908, but rising thereafter to 22,917 for 1909, 24,937 for 1910, 27,303 for 1911, 31,276 for 1912, 31,383 for 1913, and 31,902 for 1914, this maximum for the ten-year period being followed by the somewhat smaller total of 31,451 for 1915. The early increase of 1,688, or 7.9 per cent, for 1906 to 1907 was followed by a decrease of 1,266, or 5.5 per cent, for 1907 to 1908 offset in part by the succeeding gain of 1,178, or 5.4 per cent, for 1908 to 1909. The gains in marriages were then successively greater, both absolutely and relatively, in the whole period 1909 to 1912, the increase being 2,020, or 8.8 per cent, for 1909 to 1910, 2,366, or 9.5 per cent, for 1910 to 1911, and 3,973, or 14.6 per cent, for 1911 to 1912. In 1912 to 1913, however, the increase in marriages was only 107, or 0.3 per cent, and in 1913 to 1914 the increase was likewise only 519, or 1.7 per cent. These small gains were followed by a decrease of 451, or 1.4 per cent, in 1914 to 1915. The small gains in 1913 and 1914 and the actual decrease in 1915, in connection with the sharp drop in the marriage total for 1908, indicate that there is a tendency for people to avoid matrimony during periods of financial stringency or uncertainty.

With reference to successive increases in births shown in Table 2, it must be remembered that the number and per cent of increase necessarily grow less and less as registration becomes more and more complete, since the early gains were swollen by improved registration while recent gains include little except the natural growth of population. Thus, the greatest relative increase shown is that of 3,700, or 17.6 per cent, for 1906 to 1907, due mainly to improved registration, while the greatest absolute increases, largely in births occurring, were those of 4,502, or 12.9 per cent, for 1911 to 1912 and of 4,522, or 11.5 per cent, for 1912 to 1913. The subsequent increases in birth totals of 2,160, or 4.9 per cent, for 1913 to 1914 and of 2,063, or 4.5 per cent, for 1914 to 1915, though apparently rather small, are really quite great in view of the fact that they appear for a period with the marriage total stationary or decreasing.

In fact, analysis of the increase in the California birth total for 1915 over 1914 shows that there were marked decreases in several leading cities in the state which were overcome only by the stimulus for improved completeness in birth registration produced by the new law in effect from August 8, 1915. The new law changed birth registration requirements particularly for the smaller cities and towns, as these places were now first constituted primary birth registration districts reporting directly to the central state bureau. The law was in operation only for the last five months of 1915 but the good results produced in that period were sufficient for decreases in birth totals in several leading cities for the whole year to be more than overcome by

marked improvements in the completeness of the registration of births in California in the closing months, especially notable as to births occurring in the smaller cities and towns of the state.

The birth rate per 1,000 population was highest of all, 16.8, for 1915 and next highest, 16.7, for 1914. Moreover, the birth rate has moved upward ever since 1906 without any break whatever, while the death and marriage rates have each suffered diminutions in the course of the ten-year period. Thus the death rates of 13.7 and 13.6 for 1915 and 1914, respectively, are about the same as the rates for 1909 to 1911, inclusive, and are somewhat less than the rates for 1912 and 1913 or for the earlier period, 1906 to 1908. Similarly, the marriage rates of 11.0 and 11.5 for 1915 and 1914, respectively, are less than the corresponding rates for both 1912 and 1913, though greater than the marriage rate for any year between 1906 and 1910, the rate for 1915 being exactly the same as that for 1911. In the ten years, 1906 to 1915, the minimum marriage rate was that of 9.8 for 1908 and the maximum was that of 12.1 for 1912.

Geographic Divisions.—The following table gives the birth, death and marriage totals for the several geographic divisions in the last two years, together with the number and per cent of increase for only births and deaths (marriages having decreased) in 1914 to 1915.

TABLE 3.—Birth, Death and Marriage Totals, with Increase in Births and Deaths, for Geographic Divisions: 1915 and 1914.

Geographic division	Births		Deaths		Marriages		Increase: 1914 to 1915			
							Number		Per cent	
	1915	1914	1915	1914	1915	1914	Births	Deaths	Births	Deaths
The State	48,075	46,012	39,026	37,537	31,451	31,902	2,063	1,489	4.5	4.0
Northern California...	4,562	4,203	4,101	3,957	2,497	2,650	359	144	8.5	3.6
Coast counties	1,923	1,809	2,068	2,014	1,269	1,349	114	74	6.3	3.7
Interior counties	2,639	2,394	2,013	1,943	1,228	1,301	245	70	10.2	3.6
Central California ...	25,499	21,335	20,803	20,089	17,328	17,318	1,164	714	4.8	3.6
San Francisco	7,624	7,646	7,259	6,940	6,817	6,216	*22	319	*0.3	4.6
Other bay counties	6,075	5,842	4,706	4,576	4,152	4,250	233	130	4.0	2.8
Coast counties	3,034	2,671	2,610	2,472	1,665	1,903	363	138	13.6	5.6
Interior counties	8,766	8,176	6,228	6,101	4,694	4,949	590	127	7.2	2.1
Southern California...	18,014	17,474	14,122	13,491	11,026	11,934	540	631	3.1	4.7
Los Angeles	12,106	12,378	9,590	9,038	6,061	7,441	*272	552	*2.2	6.1
Other counties	5,908	5,096	4,532	4,453	4,645	4,493	812	81	15.9	1.8
Northern and Central California	30,061	28,538	24,904	24,046	19,825	19,968	1,523	858	5.3	3.6
Coast counties	18,656	17,968	16,663	16,002	13,903	13,718	688	661	3.8	4.1
Interior counties	11,405	10,570	8,241	8,044	5,922	6,250	835	197	7.9	2.4
Metropolitan area ...	13,669	13,488	11,965	11,516	10,969	10,466	211	449	1.6	3.9
Rural counties	16,362	15,060	12,939	12,530	8,856	9,502	1,312	409	8.7	3.3

*Decrease.

The increase shown for California as a whole in 1914 to 1915 (when marriages decreased by 451 or 1.4 per cent) was 2,063 or 4.5 per cent for births, but only 1,489 or 4.0 per cent for deaths.

The rate of gain in birth registration totals was greatest for northern California, 8.5, and next for central California, 4.8, against only 3.1 for southern California. There was a slight decrease in the birth total for San Francisco and a considerable drop in that for Los Angeles. However, the rate of gain in the birth total was highest among minor geographic divisions for southern California except Los Angeles, 15.9; next for the coast counties of central California, 13.6; and next for the interior counties of northern California, 10.2. The per cent of increase in the birth total was only 1.6 for the metropolitan area as compared with 8.7 for the rural counties north of Tehachapi.

The per cent of increase in deaths was 4.7 for southern California but only 3.6 for northern as well as for central California also. Among minor geographic divisions the per cent of increase was greatest for Los Angeles, 6.1; next for the coast counties of central California, 5.6; and next for San Francisco, 4.6. The per cent was 3.9 for the metropolitan area but only 3.3 for the rural counties of northern and central California.

It may be noted that the decrease in the marriage total for 1914 to 1915, mentioned heretofore as to the state, appeared in all main and minor geographic divisions except only San Francisco and southern California outside Los Angeles.

Counties.—Table 4 shows the birth, death and marriage totals for counties as well as the numerical increase in 1914 to 1915.

TABLE 4.—Birth, Death and Marriage Totals, with Increase, for Counties: 1914 to 1915.

County	Births		Deaths		Marriages		Increase: 1914 to 1915		
	1915	1914	1915	1914	1915	1914	Births	Deaths	Marriages
California	48,075	46,012	89,086	37,537	31,451	31,902	2,063	1,489	*
Alameda	4,600	4,519	3,677	3,559	2,964	2,883	81	118	*
Alpine	4	4	2	2	2	1	†	†	1
Amador	189	122	120	136	35	50	17	*	*
Butte	513	472	308	340	216	235	41	28	*
Calaveras	71	76	98	92	33	31	*	6	2
Columbia	140	125	108	85	40	51	15	23	*
Contra Costa	707	573	389	385	269	270	134	4	*
Del Norte	53	39	14	18	36	25	14	*	11
El Dorado	102	94	114	109	37	33	8	5	4
Fresno	1,983	1,827	1,071	1,001	895	986	156	*	*
Glenn	108	120	70	71	52	77	*	*	*
Humboldt	448	508	370	414	305	327	*	*	*
Imperial	421	324	270	319	216	256	97	*	*
Inyo	18	19	43	42	37	47	*	1	*
Kern	685	641	465	468	444	437	44	*	7
Kings	350	300	221	191	210	207	50	30	3
Lake	82	71	81	57	23	44	11	24	*
Lassen	110	85	60	67	59	62	25	*	*
Los Angeles	12,106	12,378	9,500	9,038	6,981	7,441	*	562	*
Madera	197	184	88	85	93	84	13	3	9
Marin	271	243	279	289	657	730	28	*	*
Mariposa	31	21	32	33	17	14	10	*	3
Mendocino	357	287	309	330	167	216	70	*	*
Merced	391	307	217	182	139	148	84	35	*
Modoc	110	86	39	68	64	75	24	*	*
Mono	1	9	6	5	3	2	*	1	1
Monterey	390	312	298	280	177	196	48	18	*
Napa	307	183	551	497	230	198	24	54	32
Nevada	187	156	219	223	97	82	31	*	15
Orange	1,185	992	620	602	1,401	1,355	498	18	46
Placer	374	307	251	221	89	86	67	30	3
Plumas	59	46	70	44	36	30	13	26	6
Riverside	611	622	468	440	482	402	*	28	80
Sacramento	1,628	1,696	1,166	1,225	945	1,164	*	*	*
San Benito	213	124	108	116	63	76	89	*	*
San Bernardino	1,211	1,093	1,148	1,139	726	749	118	9	*
San Diego	1,472	1,557	1,356	1,300	1,353	1,227	*	56	126
San Francisco	7,624	7,646	7,259	6,940	6,817	6,216	*	319	601
San Joaquin	1,031	986	1,148	1,066	794	715	95	82	79
San Luis Obispo	313	291	232	220	193	218	22	12	*
San Mateo	497	507	361	343	362	367	*	18	*
Santa Barbara	590	476	384	395	283	311	114	*	*
Santa Clara	1,673	1,463	1,562	1,477	956	1,142	210	86	*
Santa Cruz	475	481	410	379	276	272	*	31	4
Shasta	251	251	231	218	120	153	†	13	*
Sierra	38	42	37	42	12	13	*	*	*
Siskiyou	307	327	189	213	177	197	*	*	*
Solano	400	402	324	342	232	201	*	*	31
Sonoma	745	692	729	656	482	526	53	65	*
Stanislaus	616	608	359	316	259	268	13	43	*
Sutter	119	87	72	70	43	40	32	2	3
Tehama	166	160	145	147	107	104	6	*	3
Trinity	31	29	43	43	21	13	2	†	8
Tulare	628	689	445	419	345	382	139	26	*
Tuolumne	51	33	99	104	59	54	18	*	5
Ventura	418	332	286	258	184	193	86	28	*
Yolo	240	243	211	193	115	125	*	18	*
Yuba	159	130	163	134	116	96	29	29	20

*Decrease.

†No change.

It appears from this table that in 1914 to 1915 the birth registration increased in as many as forty counties, remained stationary in two, and decreased in only sixteen. The death total rose in thirty-five counties, stood still in two, and fell off in twenty-one. The marriages increased in only twenty-five counties and decreased as in the state as a whole) in thirty-three counties.

For the forty counties showing increases in births the rates of gain ranged as follows: San Benito, 71.8; Orange, 71.2; Tuolumne, 54.5; Mariposa, 47.6; Sutter, 36.8; Del Norte, 35.9; Imperial, 29.9; Lassen, 29.4; Plumas, 28.3; Modoc, 27.9; Merced, 27.4; Ventura, 25.9; Mendocino, 24.4; Santa Barbara, 23.9; Contra Costa, 23.4; Yuba, 22.3; Placer, 21.8; Tulare, 20.2; Nevada, 19.9; Kings, 16.7; Lake, 15.5; Monterey, 15.4; Santa Clara, 14.4; Amador, 13.9; Napa, 13.1; Colusa, 12.0; Marin, 11.5; San Bernardino, 10.8; San Joaquin, 10.1; Butte, 8.7; Fresno, 8.5; Sonoma, 7.7; San Luis Obispo, 7.6; Madera, 7.1; Kern and Trinity, each 6.9; Tehama, 3.8; Stanislaus, 2.2; Alameda, 1.8; and El Dorado, 0.9.

For the thirty-five counties reporting more deaths in 1915 than in 1914, the per cents of increase were as follows: Plumas, 59.1; Lake, 42.1; Colusa, 27.1; Yuba, 21.6; Mono, 20.0; Merced, 19.2; Kings, 15.7; Placer and Stanislaus, each 13.6; Napa and Ventura, each 10.9; Sonoma, 9.9; Yolo, 9.3; Butte and Santa Cruz, each 8.2; San Joaquin, 7.7; Calaveras, 6.5; Monterey and Riverside, each 6.4; Tulare, 6.2; Los Angeles, 6.1; Shasta, 6.0; Santa Clara, 5.8; San Luis Obispo, 5.5; San Mateo, 5.2; El Dorado and San Francisco, each 4.6; San Diego, 4.3; Madera, 3.5; Alameda, 3.3; Orange, 3.0; Sutter, 2.9; Inyo, 2.4; Contra Costa, 1.0; and San Bernardino, 0.8.

The per cents of increase in marriages for the twenty-five counties showing gains in 1914 to 1915 were as follows: Alpine, 100.0 (from 1 to 2); Trinity, 61.5 (from 13 to 21); Mono, 50.0 (from 2 to 3); Del Norte, 44.0; Mariposa, 21.4; Yuba, 20.8; Plumas, 20.0; Riverside, 19.9; Nevada, 18.3; Napa, 16.2; Solano, 15.4; El Dorado, 12.1; San Joaquin, 11.0; Madera, 10.7; San Diego, 10.3; San Francisco, 9.7; Tuolumne, 9.3; Sutter, 7.5; Calaveras, 6.5; Placer, 3.5; Orange, 3.4; Tehama, 2.9; Kern, 1.6; Santa Cruz, 1.5; and Kings, 1.4.

Cities.—Birth and death totals are available only for freeholders' charter cities, of which there were thirty-four in 1915, thirty-two in 1914 and 1913, thirty-one in 1912, twenty-nine in 1911, twenty-six in 1910 and 1909, and twenty-four in 1908 and 1907. The two additional cities for 1915 had totals as follows: Alhambra, 44 births and 87 deaths; and Bakersfield, 172 births and 286 deaths. The figures for these two cities do not prevent the totals for thirty-four cities in 1915 and thirty-one in 1914 from being quite closely comparable. The following table presents birth and death totals for the several chartered cities in 1915 and 1914, together with the number and per cent of increase in each case.

TABLE 5.—Birth and Death Totals, with Increase, for Individual Cities and Rest of State: 1915 and 1914.

City	Births		Deaths		Increase: 1914 to 1915			
	1915	1914	1915	1914	Number		Per cent	
					Births	Deaths	Births	Deaths
California	48,075	46,012	39,026	37,567	2,063	1,489	4.5	4.0
Freeholders' charter cities.....	28,560	28,594	23,821	23,625	*25	1,296	*0.1	5.8
Northern California:								
Eureka	237	245	228	223	*	5	*	2.2
Napa	119	111	116	84	8	32	7.3	38.1
Petaluma	117	147	90	80	*	10	*	12.5
Santa Rosa	178	187	157	129	*	28	*	21.7
Grass Valley	74	43	67	73	31	*	72.1	*
Central California:								
San Francisco	7,624	7,646	7,259	6,940	*	319	*	4.6
Alameda	443	414	299	290	29	9	7.0	3.1
Berkeley	766	813	498	435	*	58	*	13.3
Oakland	3,017	2,987	2,169	2,115	80	54	2.7	2.6
Richmond	328	284	180	142	44	18	15.5	12.7
San Rafael	107	101	92	80	6	12	5.9	15.0
Monterey	98	55	73	62	43	11	78.2	17.7
Salinas	58	47	55	58	11	*	23.4	*
San Luis Obispo.....	110	120	119	101	*	18	*	17.8
Palo Alto	48	66	30	28	*	2	*	7.1
San Jose	560	575	463	461	*	2	*	0.4
Santa Cruz	151	160	190	181	*	9	*	5.0
Watsonville	218	210	76	81	8	*	3.8	*
Fresno	707	731	377	430	*	*	*	*
Bakersfield	172		286		172	286		
Sacramento	1,253	1,290	997	1,066	*	*	*	*
Stockton	554	403	725	564	151	161	37.5	28.5
Vallejo	189	200	122	159	*	*	*	*
Modesto	124	139	145	109	*	36	*	33.0
Southern California:								
Los Angeles	7,867	8,222	5,853	5,644	*	209	*	3.7
Alhambra	44		87		44	87		
Long Beach	446	473	431	422	*	9	*	2.1
Pasadena	602	635	496	458	*	38	*	8.3
Pomona	201	200	169	144	1	25	0.5	17.4
Santa Monica	200	193	187	189	7	*	3.6	*
Riverside	274	299	217	219	*	*	*	*
San Bernardino	370	341	358	352	29	6	8.5	1.7
San Diego	1,018	1,101	1,003	946	17	57	1.7	6.0
Santa Barbara	296	206	232	260	89	*	43.2	*
Rest of State.....	19,506	17,418	15,206	15,012	2,088	193	12.0	1.3

*Decrease.

†Less than one-tenth of 1 per cent.

For chartered cities as a class the birth total was 28,569 in 1915 and 28,594 in 1914, a slight decrease of 25, or 0.1 per cent, being shown. The death total for cities was 23,821 in 1915 and 22,525 in 1914, the increase being 1,296, or 5.8 per cent.

For all the rest of the state the birth total was 19,506 in 1915 and 17,418 in 1914 (a gain of 2,088 or 12.0 per cent), while the death total was 15,205 in 1915 and 15,012 in 1914 (an increase of only 193 or 1.3 per cent). While the increase in the death total was very much greater, both numerically and proportionately, for chartered cities than for all the rest of the state, yet these cities actually showed a slight decrease in the birth total in contrast with a very marked gain in the birth total for the state outside such cities. An explanation is found in the fact that the new registration law of 1915 provided so great a stimulus for better reporting of births that decreases in several of the leading chartered cities were offset by returns of substantial completeness for the closing months from the smaller cities and towns, these being included in the table in totals for the state outside chartered cities.

Of the thirty-two chartered cities shown for both 1915 and 1914, only fifteen reported increases in birth registration for 1915 over 1914, while seventeen indicated decreases, those with decreased birth registration totals including populous cities like Los Angeles, San Francisco, Sacramento, Berkeley, Fresno, Pasadena, Long Beach, Riverside, and others. At the same time altogether twenty-three of the thirty-two cities reported more deaths in 1915 than in 1914, while only nine showed fewer deaths in the later year.

For the fifteen freeholders' charter cities showing increases in birth registration the rates of gain ranged as follows: Monterey, 78.2; Grass Valley, 72.1; Santa Barbara, 43.2; Stockton, 37.5; Salinas, 23.4; Richmond, 15.5; San Bernardino, 8.5; Napa, 7.2; Alameda, 7.0; San Rafael, 5.9; Watsonville, 3.8; Santa Monica, 3.6; Oakland, 2.7; San Diego, 1.7; and Pomona, 0.5.

For the twenty-three chartered cities reporting increased death totals the per cents of increase were as follows: Napa, 38.1; Modesto, 33.0; Stockton, 28.5; Santa Rosa, 21.7; San Luis Obispo, 17.8; Monterey, 17.7; Santa Monica, 17.4; San Rafael, 15.0; Berkeley, 13.3; Richmond, 12.7; Petaluma, 12.5; Pasadena, 8.3; Palo Alto, 7.1; San Diego, 6.0; Santa Cruz, 5.0; San Francisco, 4.6; Los Angeles, 3.7; Alameda, 3.1; Oakland, 2.6; Eureka, 2.2; Long Beach, 2.1; San Bernardino, 1.7; and San Jose, 0.4.

BIRTH AND DEATH TOTALS COMPARED.

Geographic Divisions.—Comparison of the birth and death totals for geographic divisions in 1915 and 1914, given in Table 6, shows that the birth registration exceeded the death total each year for every main and minor geographic division except only the coast counties of northern California. In this one group, moreover, the shortage of births below deaths was somewhat less in 1915 than in 1914. General improvement in the completeness of birth registration is indicated also by the fact that for the many geographic divisions reporting each year more births and deaths, except only San Francisco and Los Angeles, the excess of births over deaths was considerably greater, both numerically and proportionately, in 1915 than in 1914. Hence the excess of births

over deaths for California as a whole was no less than 9,049, or 23.2 per cent, in 1915 as compared with 8,475, or 22.6 per cent, in the preceding year.

The excess of births over deaths for Los Angeles was considerably less in 1915 than in 1914, while the corresponding excess for the rest of southern California was very much greater in the last year covered than in the year before. A similar contrast appears between the metropolitan area and the rural counties north of Tehachapi. The excess of births over deaths was somewhat less in 1915 than in 1914 for the metropolitan area but was considerably greater in the later year than in the year preceding for the rural counties of northern and central California.

The detailed figures for geographic divisions appear in Table 6, which follows:

TABLE 6.—Birth and Death Totals Compared, for Geographic Divisions: 1915 and 1914.

Geographic division	1915		1914		Excess of births over deaths			
	Births	Deaths	Births	Deaths	Number		Per cent	
					1915	1914	1915	1914
The State	48,075	39,026	46,012	37,537	9,049	8,475	23.2	22.6
Northern California	4,562	4,101	4,203	3,967	461	246	11.2	6.2
Coast counties	1,923	2,088	1,869	2,014	*165	*265	*7.9	*10.2
Interior counties	2,639	2,013	2,394	1,943	626	451	31.1	23.2
Central California	25,499	20,803	24,335	20,080	4,696	4,246	22.6	21.1
San Francisco	7,624	7,259	7,646	6,940	365	706	5.0	10.2
Other bay counties	6,075	4,706	5,842	4,576	1,369	1,266	29.1	27.7
Coast counties	3,034	2,610	2,671	2,472	424	199	16.2	8.1
Interior counties	8,766	6,228	8,176	6,101	2,538	2,075	40.8	34.0
Southern California	18,014	14,122	17,474	13,491	3,892	3,963	27.6	29.5
Los Angeles	12,106	9,590	12,378	9,038	2,516	3,340	26.2	37.0
Other counties	5,908	4,532	5,096	4,453	1,376	643	30.4	14.4
Northern and Central California	30,061	24,904	28,538	24,046	5,157	4,492	20.7	18.7
Coast counties	18,656	16,663	17,968	16,002	1,993	1,966	12.0	12.3
Interior counties	11,405	8,241	10,570	8,044	3,164	2,526	38.4	31.4
Metropolitan area	13,699	11,965	13,488	11,516	1,734	1,972	14.5	17.1
Rural counties	16,362	12,039	15,050	12,530	3,423	2,520	26.5	20.1

*Shortage of births below deaths.

Cities.—Table 7 presents similar figures for the chartered cities (numbering thirty-four in 1915 and thirty-two in 1914) and for the rest of California.

TABLE 7.—Birth and Death Totals Compared, for Individual Cities and Rest of State: 1915 and 1914.

City	1915		1914		Excess of births over deaths			
	Births	Deaths	Births	Deaths	Number		Per cent	
					1915	1914	1915	1914
California	48,075	39,086	46,012	37,537	9,049	8,475	23.2	22.6
Freeholders' charter cities.....	28,569	23,821	28,594	22,525	4,748	6,069	19.9	26.9
Northern California:								
Eureka	237	228	245	223	9	22	3.9	9.9
Napa	119	116	111	84	3	27	2.6	22.1
Petaluma	117	90	147	80	27	67	30.0	83.8
Santa Rosa	178	157	187	129	21	58	13.4	45.0
Grass Valley	74	67	43	73	7	•	10.4	•
Central California:								
San Francisco	7,624	7,259	7,646	6,940	365	706	5.0	10.2
Alameda	443	299	414	290	144	124	48.2	42.8
Berkeley	766	493	813	435	273	378	55.4	86.9
Oakland	3,017	2,169	2,937	2,115	848	822	39.1	38.9
Richmond	328	160	284	142	168	142	105.0	100.0
San Rafael	107	92	101	80	15	21	16.3	26.1
Monterey	98	73	55	62	25	•	34.2	•
Salinas	58	55	47	58	3	•	5.5	•
San Luis Obispo.....	110	119	120	101	•	19	•	18.8
Palo Alto	48	30	66	28	18	38	60.0	135.7
San Jose	560	463	575	461	97	114	21.0	24.7
Santa Cruz	151	190	160	181	•	•	•	•
Watsonville	218	76	210	81	142	129	186.8	159.3
Fresno	707	377	731	430	330	301	87.5	70.9
Bakersfield	172	286	•	•	•	•	•	•
Sacramento	1,253	997	1,290	1,066	256	224	25.7	21.0
Stockton	554	725	403	564	•	•	•	•
Vallejo	189	122	200	159	67	41	54.9	25.8
Modesto	124	145	139	109	•	30	•	27.5
Southern California:								
Los Angeles	7,967	5,853	8,222	5,644	2,014	2,578	34.5	45.7
Alhambra	44	87	•	•	•	•	•	•
Long Beach	446	431	473	422	15	51	2.5	12.1
Pasadena	602	496	636	458	106	177	21.4	38.6
Pomona	201	169	200	144	32	56	18.9	38.9
Santa Monica	200	187	193	189	13	4	7.0	2.1
Riverside	274	217	299	219	57	80	26.3	36.5
San Bernardino	370	358	341	352	12	•	3.4	•
San Diego	1,018	1,008	1,101	946	15	155	1.5	16.4
Santa Barbara	295	232	206	260	63	•	27.2	•
Rest of State.....	19,506	15,205	17,418	15,012	4,301	2,406	28.3	16.0

*Shortage of births below deaths.

For chartered cities as a class the excess of births over deaths was only 4,748, or 19.9 per cent, in 1915 as compared with 6,069, or 26.9 per cent, in 1914. For all the rest of the state, however, the births exceeded the deaths by 4,301, or as much as 28.3 per cent, in 1915, against merely 2,406, or 16.0 per cent, in 1914. The diminishing excess of births over deaths shown for chartered cities in contrast with the growing excess of the same kind for the rest of the state is explained by the fact that improvements in the completeness of birth registration brought about by the new law of 1915 were specially noticeable in the smaller cities and towns on their being first made separate registration districts, these places being included in the table with that part of the state outside chartered cities.

Of the thirty-four chartered cities shown for 1915, twenty-eight reported more births than deaths, while of the thirty-two such cities in 1914 twenty-five showed an excess of births over deaths. Altogether twenty-three cities reported more births than deaths in both 1915 and 1914. These twenty-three cities were as follows: Eureka, Napa, Petaluma, and Santa Rosa in northern California; San Francisco, Alameda, Berkeley, Oakland, Richmond, San Rafael, Palo Alto, San Jose, Watsonville, Fresno, Sacramento, and Vallejo in central California; and Los Angeles, Long Beach, Pasadena, Pomona, Santa Monica, Riverside, and San Diego in southern California. The five cities which showed an excess of births over deaths for 1915 though not for 1914 were Grass Valley, Monterey, Salinas, San Bernardino, and Santa Barbara, while the two which showed such an excess for 1914 but not for 1915 were San Luis Obispo and Modesto.

Reference to Table 7 shows that the relative excess of births over deaths was notably great in certain cities with per cents as follows for 1915 and 1914, respectively: Watsonville, 186.8 and 159.3; Richmond, 105.0 and 100.0; Palo Alto, 60.0 and 135.7; Fresno, 87.5 and 70.0; Berkeley, 55.4 and 86.9; Alameda, 48.2 and 42.8; Oakland, 39.1 and 38.9; Petaluma, 30.0 and 83.8; Vallejo, 54.9 and 25.8; Los Angeles, 34.5 and 45.7; Riverside, 26.3 and 36.5; Pasadena, 21.4 and 38.6; Pomona, 18.9 and 38.9; Sacramento, 25.7 and 21.0; San Jose, 21.0 and 24.7; San Rafael, 16.3 and 26.3; and Santa Rosa, 13.4 and 45.0.

It may be observed from the above list that the relative excess of births over deaths was somewhat less in 1915 than in 1914 for several cities. In fact, only seven cities with an excess of births over deaths for both 1915 and 1914 showed the greater relative excess in the latest year covered, these seven cities being Watsonville, Richmond, Fresno, Alameda, Oakland, Vallejo, and Sacramento. There were also five other cities, Grass Valley, Monterey, Salinas, San Bernardino, and Santa Barbara, which showed an excess of births over deaths for 1915 in contrast with a shortage of births below deaths for 1914.

Of the remaining twenty cities shown for both 1915 and 1914 there were two, San Luis Obispo and Modesto, with fewer births reported than deaths for 1915 in contrast with an excess of births over deaths for 1914, as well as eighteen cities in which the relative excess of births over deaths appearing each year was less in the year last covered than in the year before. The eighteen with the excess of births over deaths relatively less in 1915 than in 1914 include populous cities as follows: Los Angeles, 34.5 in 1915 against 45.7 in 1914; San Francisco, 5.0 against 10.2; Berkeley, 55.4 against 86.9; Pasadena, 21.4 against 38.6; Long Beach, 3.5 against 12.1; San Jose, 21.0 against 24.7; Riverside, 26.3 against 36.5; and Pomona, 18.9 against 38.9.

It may be noted that of the total birth registration for all California altogether 59.4 per cent was reported by the thirty-four chartered cities in 1915 and 62.1 per cent by the thirty-two such cities in 1914. Similarly, of the total deaths in the state some 61.0 per cent occurred in the thirty-four chartered cities in 1915 and 60.0 per cent in the thirty-two cities of this class in 1914. From the greater per cent of total births than of total deaths shown for freeholders' charter cities in 1914, as well as from the much greater excess of births over deaths within cities than outside them in that year, it would seem that in the year

1914 birth registration was somewhat more complete within these leading cities than in the outside partly rural territory. However, from the smaller per cent of total births than of total deaths shown for chartered cities in 1915, as well as from the much smaller excess of births over deaths shown for such cities than for the rest of the state in this year, it would appear also that in the latest year covered, 1915, birth registration was probably less complete, or at least less notably improved, in the leading cities having freeholders' charters than in smaller cities and towns recently made separate birth registration districts, these smaller cities and towns being included in tabulations with that part of the state outside chartered cities.

BIRTH, DEATH AND MARRIAGE RATES.

Population Estimates.—Since the publication of the Federal Census results for 1910, population estimates can be obtained with strict accuracy on the basis of county and city totals for June 1, 1900, and April 15, 1910, the estimates being made for the sake of uniformity as of July 1, or the middle of each year. The estimated midyear population for both 1914 and 1915 has been calculated on the assumption that the numerical increase has been the same each month since April 15, 1910, as it was each month between June 1, 1900, and April 15, 1910. The average monthly increase is obtained by dividing the increase for the whole decade by 118.5 (the number of months between June 1, 1900, and April 15, 1910), and the total increase to July 1, 1914, is then got by multiplying by 50.5 (the number of months between April 15, 1910, and July 1, 1914), the increase to July 1, 1915, being obtained similarly by multiplying by 62.5 (the number of months between April 15, 1910, and July 1, 1915). The estimated midyear population for 1914 and 1915 is found, finally, by adding to the population enumerated April 15, 1910, the estimated increase to July 1, 1914 or 1915, as the case may be.

For the ten counties with few inhabitants showing decreases between 1900 and 1910, the census population of April 15, 1910, has been taken as the midyear estimate for both 1914 and 1915. Moreover, special estimates have been taken from reports of the Federal Census Bureau for seven cities (Berkeley, Oakland, San Jose, Fresno, Los Angeles, Pasadena and Sacramento) to cover corrections for territory annexed between 1900 and 1910 or since 1910.

The estimated midyear population for Alameda County, for instance, was obtained as follows:

Population enumerated April 15, 1910.....	246,131
Population enumerated June 1, 1900.....	130,197
Increase, June 1, 1900, to April 15, 1910 (118.5 months).....	115,934
Increase, April 15, 1910, to July 1, 1915 ($\times 62.5 \div 118.5$).....	61,145
Increase, April 15, 1910, to July 1, 1914 ($\times 50.5 \div 118.5$).....	49,404
Estimated midyear population, 1915.....	307,276
Estimated midyear population, 1914.....	295,537
Similarly, the estimated midyear population for Alameda City was obtained thus:	
Population enumerated April 15, 1910.....	23,263
Population enumerated June 1, 1900.....	16,464
Increase, June 1, 1900, to April 15, 1910 (118.5 months).....	6,919
Increase, April 15, 1910, to July 1, 1915 ($\times 62.5 \div 118.5$).....	3,649
Increase, April 15, 1910, to July 1, 1914 ($\times 50.5 \div 118.5$).....	2,949
Estimated midyear population, 1915.....	27,022
Estimated midyear population, 1914.....	26,332

Geographic Divisions.—The following table gives the estimated mid-year population, births, deaths and marriages, and rates per 1,000 population for the several geographic divisions in both 1915 and 1914.

TABLE 8.—Estimated Midyear Population, Births, Deaths and Marriages, and Rates per 1,000 Population, for Geographic Divisions: 1915 and 1914.

Geographic division	Estimated midyear population	Births	Deaths	Marriages	Rate per 1,000 population		
					Births	Deaths	Marriages
1915.							
The State	2,854,727	48,075	39,026	31,451	16.8	13.7	11.0
Northern California	322,800	4,562	4,101	2,497	14.1	12.7	7.7
Coast counties	149,612	1,923	2,088	1,290	12.9	14.0	8.5
Interior counties	173,278	2,639	2,013	1,228	15.2	11.6	7.1
Central California	1,544,716	25,499	20,803	17,328	16.5	13.5	11.2
San Francisco	456,010	7,624	7,259	6,817	16.7	15.9	14.9
Other bay counties	410,444	6,075	4,706	4,152	14.8	11.5	10.1
Coast counties	180,695	3,034	2,610	1,665	16.8	14.4	9.2
Interior counties	497,567	8,766	6,228	4,694	17.6	12.5	9.4
Southern California	987,121	18,014	14,122	11,626	18.2	14.3	11.8
Los Angeles	680,203	12,106	9,590	6,981	17.8	14.1	10.3
Other counties	306,918	5,908	4,532	4,645	19.2	14.8	15.1
Northern and Central California	1,897,006	30,061	24,904	19,825	16.1	13.3	10.6
Coast counties	1,196,761	18,656	16,663	13,903	15.6	13.9	11.6
Interior counties	670,845	11,405	8,241	5,922	17.0	12.3	8.8
Metropolitan area	866,454	13,699	11,966	10,969	15.8	13.8	12.7
Rural counties	1,001,152	16,362	12,939	8,856	16.3	12.9	8.8
1914.							
The State	2,763,109	46,012	37,537	31,902	16.7	13.6	11.5
Northern California	318,202	4,203	3,957	2,650	13.2	12.4	8.3
Coast counties	147,231	1,809	2,014	1,349	12.3	13.7	9.2
Interior counties	170,968	2,394	1,943	1,301	14.0	11.4	7.6
Central California	1,503,061	24,335	20,089	17,318	16.2	13.4	11.5
San Francisco	448,503	7,646	6,940	6,216	17.0	15.5	13.9
Other bay counties	394,904	5,842	4,576	4,250	14.8	11.6	10.8
Coast counties	176,980	2,671	2,472	1,903	15.1	14.0	10.8
Interior counties	482,694	8,176	6,101	4,949	16.9	12.6	10.3
Southern California	941,846	17,474	13,491	11,934	18.6	14.3	12.7
Los Angeles	646,397	12,378	9,038	7,441	19.1	14.0	11.5
Other counties	295,449	5,096	4,453	4,493	17.2	15.1	15.2
Northern and Central California	1,821,263	28,538	24,046	19,968	15.7	13.2	11.0
Coast counties	1,167,001	17,068	16,002	13,718	15.4	13.7	11.7
Interior counties	653,062	10,570	8,044	6,250	16.2	12.3	9.6
Metropolitan area	843,407	13,488	11,516	10,466	16.0	13.7	12.4
Rural counties	977,856	15,050	12,530	9,502	15.4	12.8	9.7

For California in 1915 and 1914 the estimated midyear population was 2,854,727 and 2,763,109, respectively, giving birth rates of 16.8 and 16.7, death rates of 13.7 and 13.6, and marriage rates of 11.0 and 11.5.

It may be added that for preceding years the estimated midyear population of California was as follows: 1913, 2,671,491; 1912, 2,579,874;

1911, 2,488,256; 1910, 2,396,639; 1909, 2,306,001; 1908, 2,215,615; 1907, 2,125,240; and 1906, 2,034,861. For populations thus estimated the birth rates were 16.4 for 1913, 15.2 for 1912, 14.0 for 1911, 13.4 for both 1910 and 1909, 12.7 for 1908, 11.6 for 1907, and 10.3 for 1906; the death rates were respectively, 14.4 (1913), 14.2, 13.7, 13.5, 13.4, 14.1, 14.6, and 14.4 (1906); and the marriage rates were, respectively, 11.7 (1913), 12.1, 11.0, 10.4, 9.9, 9.8, 10.8, and 10.5 (1906).

The birth rates for 1915 and 1914 thus mark the highest points attained in the upward movement of the California birth rate extending from 1906 without any break at all. The death rates for 1915 and 1914, however, are about the same as earlier rates for 1909 to 1911, inclusive, and are somewhat less than the rates for 1912 and 1913 or for an earlier period of 1906 to 1908. The marriage rates for 1915 and 1914 are less than preceding rates for 1913 and 1912, though greater than earlier rates for 1906 to 1910, the rate for 1915 being the same as that for 1911.

The birth rates for 1915 and 1914, as for previous years, are somewhat higher for the territory south of Tehachapi than for that to the north, being 18.2 and 18.6 for southern California against 16.1 and 15.7 for northern and central California together. The birth rates for central California alone were 16.5 in 1915 and 16.2 in 1914, but only 14.1 and 13.2 for northern California alone. The rates were lower in 1915, though higher in 1914, for Los Angeles than for the rest of southern California, as well as for the metropolitan area than for the rural counties north of Tehachapi. However, the birth rates were higher for San Francisco, 16.7 in 1915 and 17.0 in 1914, than for the other bay counties, 14.8 each year.

The death rates for 1915 and 1914 are slightly more for southern California, 14.3 each year, than for the territory north of Tehachapi, 13.3 and 13.2, being 13.5 and 13.4 for central California alone and 12.7 and 12.4 for northern California. Each year the death rate was somewhat higher for the metropolitan area than for the rural counties north of Tehachapi, and also much higher for San Francisco alone than for the group of suburban counties. However, the death rates were somewhat less both years for Los Angeles than for the other counties of southern California.

The marriage rates for 1915 and 1914 are somewhat higher for the territory south of Tehachapi than for that to the north, being 11.8 and 12.7 for southern California against 10.6 and 11.0 for northern and central California together. The rates were 11.2 in 1915 and 11.5 in 1914 for central California as compared with only 7.7 and 8.3 for northern California. The marriage rates were much higher both years for the metropolitan area than for the rural counties north of Tehachapi, and were likewise much higher for San Francisco alone than for the group of other bay counties. On the other hand, however, the rates were considerably lower for Los Angeles than for the rest of southern California.

Counties. Table 9 presents similar figures on birth, death and marriage rates per 1,000 estimated midyear population for counties arranged alphabetically for the sake of ready reference.

TABLE 9.—Estimated Midyear Population, Births, Deaths and Marriages, and Rates per 1,000 Population, for Counties: 1915.

County	1915						
	Estimated midyear population	Births	Deaths	Marriages	Rate per 1,000 population		
					Births	Deaths	Marriages
California	2,854,727	48,075	39,026	21,451	16.8	13.7	11.0
Alameda	307,276	4,800	3,677	2,864	15.0	12.0	9.3
Alpine	309	4	2	2	12.9	6.5	6.5
Amador	9,086	139	130	35	15.3	13.2	3.9
Butte	32,672	513	368	216	15.7	11.3	6.6
Calaveras	9,171	71	98	33	7.7	10.7	3.6
Colusa	7,926	140	108	40	15.3	11.8	4.4
Contra Costa	28,863	707	389	269	18.2	10.0	6.9
Del Norte	2,422	53	14	36	21.9	5.8	14.9
El Dorado	7,492	102	114	37	13.6	15.2	4.9
Fresno	95,591	1,983	1,071	866	20.7	11.2	9.4
Glenn	8,238	108	70	52	12.9	8.5	6.3
Humboldt	37,418	448	370	306	12.0	9.9	8.2
Imperial	17,456	421	270	216	24.1	15.5	12.4
Inyo	8,344	18	43	37	2.2	5.2	4.4
Kern	48,915	686	465	444	14.0	9.5	9.1
Kings	19,584	360	221	210	17.9	11.3	10.7
Lake	5,526	82	81	28	14.8	14.7	5.1
Lassen	4,955	110	60	59	22.2	12.1	11.9
Los Angeles	680,203	12,106	9,590	6,961	17.8	14.1	10.3
Madera	9,425	197	88	98	20.9	9.3	9.9
Marin	30,078	271	279	657	9.0	9.3	21.8
Mariposa	3,956	31	32	17	7.8	8.1	4.3
Mendocino	25,758	357	309	167	13.9	12.0	6.5
Merced	18,277	391	217	139	21.4	11.9	7.6
Modoc	6,779	110	39	64	16.2	5.8	9.4
Mono	2,042	1	6	3	0.5	2.9	1.5
Monterey	26,659	360	298	177	13.5	11.2	6.6
Napa	21,566	207	551	230	9.6	25.5	10.7
Nevada	14,955	187	219	97	12.5	14.6	6.5
Orange	42,210	1,185	620	1,401	28.1	14.7	33.2
Placer	19,530	374	251	89	19.2	12.9	4.6
Plumas	5,578	59	70	36	10.6	12.5	6.5
Riverside	43,556	611	468	482	14.0	10.7	11.1
Sacramento	79,352	1,623	1,165	945	20.5	14.7	11.9
San Benito	8,784	213	108	63	24.2	12.3	7.2
San Bernardino	71,894	1,211	1,148	726	16.8	16.0	10.1
San Diego	78,985	1,472	1,356	1,353	18.6	17.2	17.1
San Francisco	456,010	7,624	7,259	6,817	16.7	15.9	14.9
San Joaquin	58,790	1,081	1,148	794	17.5	19.5	13.5
San Luis Obispo	20,831	313	232	193	15.0	11.1	9.3
San Mateo	34,228	497	361	362	14.5	10.5	10.6
Santa Barbara	32,391	590	384	283	18.2	11.9	8.7
Santa Clara	95,840	1,673	1,562	956	17.5	16.3	10.0
Santa Cruz	28,581	475	410	276	16.6	14.3	9.7
Shasta	19,765	251	231	120	12.7	11.7	6.1
Sierra	4,141	38	37	12	9.2	8.9	2.9
Siskiyou	19,771	307	180	177	15.4	9.1	8.9
Solano	29,361	400	324	232	13.6	11.0	7.9
Sonoma	53,623	745	720	482	13.9	13.4	9.0
Stanislaus	29,364	616	359	259	21.0	12.2	8.8
Sutter	6,561	119	72	43	18.1	11.0	6.6
Tehama	11,615	166	145	107	14.3	12.5	9.2
Trinity	3,301	31	43	21	9.4	13.0	6.4
Tulare	44,441	823	445	345	18.6	10.0	7.8
Tuolumne	9,979	51	99	59	5.1	9.9	5.9
Ventura	20,446	418	286	184	20.4	14.0	9.0
Yolo	14,088	240	211	115	17.0	15.0	8.2
Yuba	10,792	159	163	116	14.7	15.1	10.7

TABLE 9 (Concluded).—Estimated Midyear Population, Births, Deaths and Marriages, and Rates per 1,000 Population: 1914.

County	Estimated Midyear Population	Births	Deaths	Marriages	Rate per 1,000 population		
					Births	Deaths	Marriages
California	2,762,369	68,682	37,537	31,908	16.7	13.6	11.5
Alameda	285,337	4,529	3,569	2,883	15.3	12.0	9.6
Alpine	309	4	2	1	12.9	6.5	3.2
Amador	4,799	122	136	50	13.4	15.0	5.5
Butte	31,641	623	349	225	14.9	10.7	7.4
Calaveras	9,172	76	82	31	8.3	10.0	3.4
Colusa	7,369	125	86	51	15.8	10.8	6.5
Colusa-Costa	37,022	573	365	170	15.3	10.3	7.2
Del Norte	12,021	19	16	25	16.1	7.4	10.3
El Dorado	7,022	111	109	33	12.5	14.5	4.4
Fresno	27,784	1,257	1,091	986	19.9	11.9	10.7
Glebe	2,784	129	71	77	14.9	8.8	9.6
Humboldt	2,725	39	414	327	13.8	11.3	8.9
Imperial	2,725	124	329	256	19.4	19.1	15.3
Inyo	2,725	12	42	47	2.4	5.2	5.8
Kern	2,725	64	68	637	13.7	10.0	9.3
Kings	2,725	38	191	305	15.8	10.1	10.9
Lake	2,725	11	31	44	12.8	10.3	8.0
Lassen	2,725	10	67	62	17.3	13.6	12.6
Los Angeles	1,212,379	12,379	9,625	7,441	19.1	14.0	11.5
Madera	2,725	12	35	84	30.0	9.2	9.1
Marietta	2,725	23	39	730	8.3	9.9	25.1
Mariposa	2,725	12	33	14	5.3	8.3	3.5
Marquette	2,725	12	33	216	11.3	13.0	8.5
Marshall	2,725	12	122	168	17.4	10.3	8.4
Mexico	2,725	4	68	75	12.9	10.2	11.3
Mono	2,725	12	3	2	4.4	2.4	1.0
Monterey	2,725	12	33	135	11.9	10.7	7.4
Napa	2,725	12	497	138	8.6	23.4	9.3
Nevada	2,725	12	123	82	10.4	14.9	5.5
Orange	2,725	12	62	1,255	17.0	14.8	33.3
Placer	2,725	37	121	86	15.9	11.5	4.5
Plumas	2,725	12	44	36	11.0	8.0	7.2
Riverside	2,725	12	440	422	14.9	10.5	9.6
Sacramento	2,725	12	1,164	1,164	21.6	15.9	15.1
San Benito	2,725	12	116	76	14.4	13.4	8.8
San Bernardino	2,725	12	1,129	749	15.8	16.5	10.9
San Diego	2,725	12	1,300	1,225	20.6	17.2	16.2
San Francisco	1,487,369	1,646	6,990	6,216	17.0	15.5	13.9
San Joaquin	2,725	12	1,006	715	16.4	18.6	12.5
San Luis Obispo	2,725	12	120	215	14.2	10.7	10.6
San Mateo	2,725	12	343	367	15.5	10.5	11.2
Santa Barbara	2,725	12	365	311	15.1	12.5	9.9
Santa Clara	2,725	12	1,477	1,142	15.7	15.8	12.2
Santa Cruz	2,725	12	379	272	17.1	13.5	9.7
Shasta	2,725	12	216	153	12.8	11.1	7.8
Sierra	2,725	12	42	13	10.2	10.2	2.1
Siskiyou	2,725	12	213	197	16.7	10.9	10.1
Solano	2,725	12	342	201	13.9	11.8	6.9
Sonoma	2,725	12	635	506	13.2	12.4	10.6
Stanislaus	2,725	12	316	208	21.5	11.3	9.6
Sutter	2,725	12	70	40	13.4	10.7	6.1
Tehama	11,774	160	147	104	13.8	12.7	9.0
Trinity	2,725	12	43	13	8.8	13.0	3.9
Tulare	42,712	68	419	382	16.1	9.8	8.9
Tuolumne	2,725	12	104	54	3.3	10.4	5.4
Ventura	2,725	12	258	188	16.6	12.9	9.6
Yuba	14,067	245	138	125	17.3	13.7	8.9
Yuba	10,648	130	134	96	12.2	12.6	8.0

The individual counties with birth rates above the state averages of 16.8 and 16.7, in 1915 and 1914, respectively, are as follows: Stanislaus, 21.0 and 20.5; Sacramento, 20.5 and 21.6; Madera, 20.9 and 20.0; Fresno, 20.7 and 19.9; Imperial, 24.1 and 19.4; Orange, 28.1 and 17.0; San Diego, 18.6 and 20.6; Los Angeles, 17.8 and 19.1; Lassen, 22.2 and 17.3; Merced, 21.4 and 17.4; and Yolo, 17.0 and 17.3. The birth rate also equalled or exceeded the general average only for 1915 (16.8) in the following counties: San Benito, 24.2; Del Norte, 21.9; Ventura, 20.4; Placer, 19.2; Tulare, 18.6; Contra Costa and Santa Barbara each 18.2; Sutter, 18.1; Kings, 17.9; San Joaquin and Santa Clara each 17.5; and San Bernardino, 16.8. Similarly, the birth rate equalled or exceeded the state average for 1914 alone (16.7) in the following counties: Santa Cruz, 17.1; San Francisco, 17.0; and Siskiyou, 16.7.

Among the individual counties, Napa shows the highest death rates, 25.5 for 1915 and 23.4 for 1914, this unenviable prominence being explained, however, by the many deaths of aged persons occurring at the Napa State Hospital and the Veterans' Home of California located in this county of relatively small population. The death rates in 1915 and 1914, respectively, were next highest for the following counties: San Joaquin, 19.5 and 18.6; San Diego, 17.2 each year; San Bernardino, 16.0 and 16.5; Santa Clara, 16.3 and 15.8; Imperial, 15.5 and 19.1; San Francisco, 15.9 and 15.5; El Dorado, 15.2 and 14.5; Sacramento, 14.7 and 15.9; Orange, 14.7 and 14.8; Nevada, 14.6 and 14.9; Yolo, 15.0 and 13.7; and Los Angeles, 14.1 and 14.0. These are the counties with death rates above the state averages of 13.7 for 1915 and 13.6 for 1914. The death rate also surpassed the general average only for 1915 (13.7) in each of the following additional counties: Yuba, 15.1; Lake, 14.7; Santa Cruz, 14.3; and Ventura, 14.0. The death rate was also above the state average of 13.6 for 1914 alone in Amador, 15.0, and equal to it in Lassen, 13.6.

Among the individual counties, Orange adjoining Los Angeles shows by far the highest marriage rates, 33.2 in 1915 and 33.3 in 1914, while Marin adjoining San Francisco shows the second highest rates, 21.8 and 25.1 in 1915 and 1914, respectively. The marriage rates are also notably high for the following counties: San Diego, 17.1 and 16.2; San Francisco, 14.9 and 13.9; San Joaquin, 13.5 and 12.5; Imperial, 12.4 and 15.3; Sacramento, 11.9 and 15.1; and Lassen, 11.9 and 12.6. These are the counties with marriage rates above both state averages, 11.0 for 1915 and 11.5 for 1914. The marriage rates also surpassed the state average of 11.0 in 1915 alone for Del Norte (14.9) and Riverside (11.1), and likewise exceeded or equalled the general average of 11.5 in 1914 only for Santa Clara (12.2) and Los Angeles (11.5).

The counties mentioned as having high marriage rates will be recognized generally as counties having large cities. Moreover, the marriage rates are much higher for the metropolitan area than for the rural counties north of Tehachapi. It seems, therefore, that there is a strong tendency for marriageable persons living in the country to go to an urban center to be married; if not to the metropolis itself, then to the largest city accessible for a satisfactory celebration of the event. On the other hand, there is a counter movement by which couples living in metropolitan centers like Los Angeles or San Francisco select for their place of marriage not the metropolis proper, but instead a sub-urban city or town. This is indicated by the very great proportion of

MARRIAGES.—The best population for Orange County adjacent to Los Angeles and for Marin in the suburbs of San Francisco. In short, country swains like to celebrate marriage in large cities, while couples living in metropolitan districts are inclined to prefer suburban places.

Notes.—Table 10 gives the birth and death rates per 1,000 estimated midyear population for the thirty-four freeholders' charter cities in 1915 and the thirty-two such cities in 1914, in comparison with all the rest of the state as a whole.

TABLE 10.—Estimated Midyear Population, Births and Deaths, and Rates per 1,000 Population for Individual Cities and Rest of State: 1915 and 1914.

City	Estimated mid-year population		Births		Deaths		Rate per 1,000 population			
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
California	2,554,727	2,752,186	48,865	48,862	30,086	37,537	16.8	16.7	13.7	13.6
Freeholders' charter cities	1,006,545	1,001,354	26,500	26,394	22,821	22,525	16.9	17.9	14.1	14.1
Northern California:										
Flunks	14,125	13,777	327	265	228	223	16.7	17.8	16.0	16.2
Napa	6,717	6,539	119	111	116	84	17.7	17.0	17.3	12.8
Yuba City	6,400	6,726	117	167	90	80	16.9	21.8	13.0	11.9
Santa Rosa	5,400	5,916	178	187	157	159	21.1	22.5	18.6	15.5
Grass Valley	4,520	4,520	74	43	67	73	16.4	9.5	14.8	16.2
Central California:										
San Francisco	498,100	448,578	7,634	7,446	7,330	6,940	16.7	17.0	15.9	15.5
Alameda	27,762	26,332	443	414	230	290	16.4	15.7	11.1	11.0
Berkeley	54,759	52,705	708	813	498	435	14.0	15.6	9.0	8.3
Oakland	154,244	153,002	3,647	2,987	2,160	2,115	15.8	16.0	11.4	11.6
Richmond	2,237	2,356	325	284	166	142	39.3	35.2	19.3	17.6
San Rafael	12,118	6,510	207	201	92	80	15.2	14.8	13.1	11.7
Modesto	1,715	4,273	96	55	73	62	14.9	8.8	11.1	9.9
Salinas	3,364	3,950	88	47	55	58	14.6	12.0	13.9	14.5
San Luis Obispo	6,024	6,467	119	126	119	101	17.5	19.8	18.9	16.6
Palo Alto	5,000	5,441	48	66	30	28	8.0	11.6	5.0	4.9
San Jose	37,944	37,665	500	575	463	461	14.7	15.5	12.2	12.4
Santa Cruz	14,440	15,484	151	160	190	181	10.8	11.9	13.5	13.4
Watsonville	4,600	4,887	218	210	76	81	41.2	43.4	15.4	16.7
Fresno	91,528	24,806	707	731	377	430	22.8	24.5	12.2	14.4
Bakersfield	16,206	16,206	172	172	265	265	10.6	17.4	17.4	17.4
Sacramento	64,806	62,717	1,253	1,290	997	1,006	19.3	20.6	15.4	17.0
Stockton	29,284	29,792	554	403	725	564	21.1	15.7	27.4	21.9
Vallejo	15,120	12,778	189	300	122	139	14.4	15.7	9.3	12.4
Modesto	5,494	4,291	124	139	145	109	24.3	23.4	28.5	22.3
Southern California:										
Los Angeles	465,702	438,914	7,867	8,222	5,953	5,644	16.9	18.7	12.6	12.9
Alhambra	7,050	7,050	44	44	87	87	6.2	12.3	12.3	12.3
Long Beach	26,414	24,439	446	473	431	422	17.1	19.4	16.6	17.3
Pasadena	41,700	41,380	602	635	496	458	13.9	15.5	11.4	11.2
Pomona	12,070	12,070	201	200	160	144	15.9	16.4	13.3	11.9
Santa Monica	10,073	9,888	200	193	187	189	19.3	19.5	18.0	18.1
Riverside	19,030	18,297	274	290	217	219	14.4	16.3	11.4	12.0
San Bernardino	16,275	15,004	370	341	358	352	22.7	21.9	22.0	22.6
San Diego	51,117	48,001	1,018	1,101	1,008	946	19.9	22.9	19.6	19.3
Santa Barbara	14,334	13,820	295	206	232	200	20.6	14.9	16.2	15.5
Rest of State	1,167,582	1,162,225	19,506	17,418	15,205	15,012	16.7	15.0	13.0	12.9

The birth rate per 1,000 population was about the same in 1915 for chartered cities as a class, 16.9, as for all the rest of the state, 16.7, although the birth rate in 1914 was much higher within these cities, 17.9, than outside them, 15.0. In both years, however, the death rate was considerably greater for chartered cities, 14.1 each year, than for the rest of the state, 13.0 in 1915 and 12.9 in 1914. While the death rate remained stationary both for chartered cities and the rest of the state yet there appeared between 1914 and 1915 a sharp drop in the birth rate for chartered cities from 17.9 to 16.9 in contrast with a marked rise in the birth rate for the state outside these cities from 15.0 to 16.7. As the marriage rate has been decreasing in California in recent years of financial stringency or uncertainty, it is possible that there may have occurred also some decrease in the actual birth rate in this state such as is indicated by figures for several leading chartered cities as well as for these cities as a class. However, any real decrease in the California birth rate has been more than overcome by notable completeness of returns for births in the smaller cities and towns of the state which were first made separate birth registration districts under the new law in effect from August 8, 1915. The substantial completeness of birth registration in the smaller cities and towns in the last five months of 1915 accounts for the exceptionally great increase in the birth rate for 1915 over that for 1914 shown for the state outside chartered cities.

The birth rates equalled or exceeded the city averages of 16.9 and 17.9 for 1915 and 1914, respectively, in the following cities: Watsonville, 44.2 and 43.4; Richmond, 39.3 and 35.2; Modesto, 24.3 and 28.4; Fresno, 22.8 and 24.5; San Bernardino, 22.7 and 21.9; Santa Rosa, 21.1 and 22.5; San Diego, 19.9 and 22.5; Sacramento, 19.3 and 20.6; Santa Monica, 19.3 and 19.5; San Luis Obispo, 17.5 and 19.8; Long Beach, 17.1 and 19.4; Petaluma, 16.9 and 21.8; and Los Angeles, 16.9 and 18.7. The birth rate was also above the city average for 1915 alone (16.9) for Stockton, 21.1; Santa Barbara, 20.6; and Napa, 17.7.

The death rates surpassed the city average of 14.1 for both 1915 and 1914 in the following cities: Modesto, 28.5 in 1915 and 22.3 in 1914; Stockton, 27.6 and 21.9; San Bernardino, 22.0 and 22.6; San Diego, 19.6 and 19.3; Richmond, 19.2 and 17.6; Santa Monica, 18.0 and 19.1; San Luis Obispo, 18.9 and 16.6; Santa Barbara, 16.2 and 18.8; Santa Rosa, 18.6 and 15.5; Long Beach, 16.6 and 17.3; Eureka, 16.0 and 16.2; San Francisco, 15.9 and 15.5; Sacramento, 15.4 and 17.0; Watsonville, 15.4 and 16.7; and Grass Valley, 14.8 and 16.2. The death rate also exceeded the city average in 1915 alone for Bakersfield (17.6) and Napa (17.3) and in 1914 only for Salinas (14.8) and Fresno (14.4).

On the other hand, the death rates were remarkably low in both 1915 and 1914 for certain cities as follows: Palo Alto, 5.0 and 4.9; Berkeley, 9.0 and 8.3; Monterey, 11.1 and 9.9; Alameda, 11.1 and 11.0; Pasadena, 11.4 and 11.2; Oakland, 11.4 and 11.6; Riverside, 11.4 and 12.0; Vallejo, 9.3 and 12.4; San Jose, 12.2 and 12.4; Los Angeles, 12.6 and 12.9; Petaluma, 13.0 and 11.9; San Rafael 13.1 and 11.7; and Pomona, 13.3 and 11.8. The death rates were also notably low in 1915 alone for Fresno, 12.2, and for Alhambra, 12.3.

TABLE 11.—Deaths Reported for Registration Districts (Cities, Towns, and Rural Parts of Counties): 1915 and 1914.

(Cities or incorporated towns not reporting deaths omitted from table.)

Registration district	Deaths		Registration district	Deaths	
	1915	1914		1915	1914
California	39,086	37,537	Inyo County	43	42
Alameda County	3,677	3,559	Rural	32	26
Rural	508	483	Bishop	11	14
Alameda	299	290	Kern County	465	466
Albany	8	9	Rural	146	152
Berkeley	493	435	Bakersfield	286	229
Emeryville	30	22	Delano	2	3
Hayward	34	60	Maricopa	3	3
Livermore	32	43	Taft	22	20
Oakland	2,169	2,115	Tehachapi	6	4
Piedmont	19	18	Kings County	221	191
Pleasanton	17	8	Rural	128	106
San Leandro	70	76	Corcoran	1	1
Alpine County	2	2	Hanford	76	75
Amador County	120	136	Lemoore	16	8
Rural	60	61	Lake County	81	57
Amador	4	—	Rural	65	44
Jackson	44	51	Lakeport	16	13
Sutter Creek	12	24	Lassen County	60	67
Butte County	368	340	Los Angeles County	9,560	9,028
Rural	218	185	Rural	1,372	1,158
Biggs	6	4	Alhambra	87	73
Chico	83	84	Arcadia	6	1
Gridley	12	22	Avalon	4	—
Oroville	49	45	Azusa	33	36
Calaveras County	98	92	Beverly Hills	10	—
Rural	88	77	Burbank	22	15
Angels	10	15	Claremont	13	15
Colusa County	108	85	Compton	16	22
Rural	82	66	Covina	29	31
Colusa	26	19	El Monte	13	30
Contra Costa County	389	385	Glendale	106	95
Rural	117	97	Glendora	20	22
Antioch	21	34	Hermosa Beach	16	15
Concord	—	13	Huntington Park	35	32
Hercules	2	—	Inglewood	16	28
Martinez	57	61	Long Beach	431	422
Pinoles	1	—	Lordsburg	15	8
Pittsburg	29	38	Los Angeles	5,853	5,644
Richmond	160	142	Manhattan Beach	7	5
Walnut Creek	2	—	Monrovia	139	161
Del Norte County	14	18	Pasadena	496	458
El Dorado County	114	109	Pomona	169	144
Rural	61	54	Redondo Beach	41	33
Placerville	53	55	San Fernando	28	11
Fresno County	1,071	1,091	San Gabriel	33	35
Rural	604	598	San Marino	3	—
Clovis	1	—	Santa Monica	187	189
Coalinga	14	16	Sawtelle	51	48
Fowler	5	—	Sierra Madre	75	59
Fresno	377	430	South Pasadena	69	65
Kingsburg	11	9	Tropico	26	30
Reedley	21	—	Venice	61	53
Sanger	16	—	Vernon	7	6
Selma	22	38	Watts	41	27
Glenn County	70	71	Whittier	60	88
Rural	57	46	Madera County	88	85
Orland	4	5	Rural	80	85
Willows	9	20	Madera	8	—
Humboldt County	370	414	Marin County	279	289
Rural	122	184	Rural	129	137
Arcata	10	—	Larkspur	5	1
Blue Lake	3	7	Mill Valley	22	26
Eureka	228	223	Ross	1	5
Ferndale	5	—	San Anselmo	11	11
Fortuna	2	—	San Rafael	92	80
Imperial County	270	319	Sausalito	19	29
Rural	75	188	Mariposa County	32	33
Brawley	26	26	Mendocino County	309	330
Calexico	42	38	Rural	103	220
El Centro	90	29	Fort Bragg	50	46
Holtville	18	11	Point Arena	10	5
Imperial	19	27	Potter Valley	3	5
			Ukiah	32	28
			Willits	12	16

TABLE 11.—Deaths Reported for Registration Districts (Cities, Towns, and Rural Parts of Counties): 1915 and 1914.—Continued.

(Cities or incorporated towns not reporting deaths omitted from table.)

Registration district	Deaths		Registration district	Deaths	
	1915	1914		1915	1914
Merced County	217	182	San Diego County—Continued.		
Rural	150	133	Oceanside	23	19
Los Banos	18	15	San Diego	1,008	946
Merced	49	34	San Francisco (city and county)	7,259	6,940
Modoc County	39	68	San Joaquin County	1,148	1,066
Rural	29	54	Rural	365	461
Alturas	10	14	Lodi	50	33
Mono County	6	5	Stockton	725	564
Monterey County	298	280	Tracy	8	8
Rural	120	112	San Luis Obispo County	232	220
King City	3	1	Rural	69	58
Monterey	73	62	Arroyo Grande	14	11
Pacific Grove	47	47	Paso de Robles	30	50
Salinas	55	58	San Luis Obispo	119	101
Napa County	551	497	San Mateo County	361	343
Rural	420	389	Rural	171	185
Calistoga	9	19	Burlingame	17	18
Napa	116	84	Daly City	16	14
St. Helena	6	5	Hillsborough	7	1
Nevada County	219	223	Redwood City	35	30
Rural	111	115	San Bruno	8	
Grass Valley	67	73	San Mateo	66	72
Nevada City	41	35	South San Francisco	41	23
Orange County	620	602	Santa Barbara County	384	395
Rural	264	222	Rural	100	96
Anaheim	66	78	Lompoc	13	16
Fullerton	28	39	Santa Barbara	232	260
Huntington Beach	33	26	Santa Maria	89	23
Newport Beach	2	12	Santa Clara County	1,562	1,477
Orange	50	48	Rural	900	792
Santa Ana	177	177	Gilroy	50	65
Placer County	251	221	Los Gatos	40	46
Rural	116	99	Mayfield	6	11
Auburn	55	61	Morgan Hill	2	
Colfax	16	18	Mountain View	15	21
Lincoln	10	17	Palo Alto	30	28
Rocklin	18	13	San Jose	463	461
Roseville	36	13	Santa Clara	55	53
Plumas County	70	44	Sunnyvale	1	
Riverside County	468	440	Santa Cruz County	410	379
Rural	91	103	Rural	142	108
Banning	56	37	Boulder Creek	2	9
Beaumont	19	18	Santa Cruz	190	181
Corona	54	44	Watsonville	76	81
Elsinore	18	9	Shasta County	231	218
Riverside	217	219	Rural	181	139
San Jacinto	13	10	Redding	50	79
Sacramento County	1,165	1,225	Sierra County	37	42
Rural	168	159	Rural	30	33
Sacramento	997	1,066	Loyalton	7	9
San Benito County	108	116	Siskiyou County	180	213
Rural	68	64	Rural	93	126
Hollister	38	50	Dorris	2	2
San Juan	2	2	Dunsmuir	20	16
San Bernardino County	1,148	1,139	Etna	10	3
Rural	460	432	Sisson	3	8
Chino	15		Yreka	52	58
Colton	80	103	Solano County	324	342
Needles	32	28	Rural	104	96
Ontario	63	77	Benicia	32	9
Redlands	117	118	Dixon	15	19
Rialto	1		Fairfield	12	11
San Bernardino	358	352	Rio Vista	16	21
Upland	22	29	Suisun	5	9
San Diego County	1,356	1,300	Vacaville	18	18
Rural	132	159	Vallejo	122	159
Chula Vista	22	16	Sonoma County	720	655
Coronado	25	20	Rural	370	339
East San Diego	36	34	Cloverdale	19	19
El Cajon	3	4	Healdsburg	50	49
Econdido	28	27	Petaluma	90	80
La Mesa	32	18	Santa Rosa	157	129
National City	52	57	Sebastopol	13	25
			Sonoma	21	14

TABLE II.—Deaths Reported for Registration Districts (Cities, Towns, and Rural Parts of Counties): 1915 and 1914.—Concluded.

(Cities or incorporated towns not reporting deaths omitted from table.)

Registration district	Deaths		Registration district	Deaths	
	1915	1914		1915	1914
Stanislaus County	359	316	Tulare County—Continued.		
Rural	143	142	Porterville	43	34
Modesto	145	106	Tulare	34	34
Newman	10	17	Visalia	87	69
Oakdale	31	24	Tuolumne County	99	104
Turlock	30	24	Ventura County	286	258
Sutter County	72	70	Rural	85	86
Rural	58	52	Fillmore	8	4
Yuba City	14	18	Oxnard	55	53
Tehama County	145	147	San Buenaventura	73	65
Rural	93	97	Santa Paula	65	48
Corning	6	9	Yolo County	211	193
Red Bluff	38	33	Rural	141	154
Tehama	8	8	Winters	22	6
Trinity County	43	43	Woodland	48	33
Tulare County	445	419	Yuba County	163	134
Rural	220	219	Rural	43	24
Dinuba	31	25	Marysville	115	109
Exeter	14	15	Wheatland	5	1
Lindsay	16	23			

II. STATISTICS OF BIRTHS: 1915 AND 1914.

SYNOPSIS.

Births by Sex, Race and Maternal Nativity. The 48,075 babies in 1915 included 24,772 boys and 23,303 girls, while of the 46,012 in 1914 the males were 23,792 and the females 22,220. The per cent male was 51.5 in 1915 and 51.7 in 1914, as compared with the average of 51.7 for 1906 to 1915, the per cent having varied irregularly through the past ten years.

The per cents male were somewhat less in 1915 and 1914 for chartered cities as a class, 51.1 and 51.5, than for all the rest of the state, 52.2 and 52.0.

The race distribution of births in 1915 was: White, 43,874; Japanese, 3,342; Chinese, 429; Negro, 392; and Indian, 38. The figures for 1914 were: White, 42,281; Japanese, 2,874; Chinese, 418; Negro, 388; and Indian, 51. The per cent white decreased steadily through the past ten years, thus: 98.4 (1906), 97.7, 96.8, 96.3, 96.1, 95.5, 94.6, 93.2, 91.9 and 91.3 (1915).

The decrease in the proportion of white babies is due to marked increases in Japanese birth registrations as follows: 134 (1906), 221, 455, 682, 719, 995, 1,467, 2,215, 2,874 and 3,342 (1915).

In both 1915 and 1914 the per cents white were much greater within cities, 92.4 and 93.2, than outside them, 89.5 and 89.7.

The preponderance of males is greater, both within cities and outside them among the few non-Caucasian babies than among the many white infants.

The nativity of the white mothers in 1915 and 1914 was: Born in other states, 16,914 and 16,628; born in California, 13,941 and 13,097; and foreign born, 13,019 and 12,556.

The per cent distribution of white mothers was for 1915 and 1914, respectively: Other states, 38.5 and 39.3; California, 31.8 and 31.0; and foreign born, 29.7 each year. For 1906 to 1915 the annual average per cents were as follows: Other American, 38.1; Californian, 33.6; and foreign, 28.3.

Between 1906 and 1915 there were increases in the per cents for mothers here who were born in other states or abroad in contrast with a decrease in the per cent of native Californians among women bearing children.

For cities the per cent of mothers born in other states was 37.2 in 1915 and 38.2 in 1914; the per cent foreign born was 32.1 each year; and the per cents born in California were 30.7 and 29.7. For the rural districts the per cents in 1915 and 1914 were, respectively: Other states, 40.6 and 41.2; California, 33.5 and 33.1; and foreign, only 25.9 and 25.7.

Statistical tables have been prepared to show the proportion of the sexes among children born to white mothers classified by nativity. However, differences between geographic divisions and between urban and rural districts prevent the drawing of general conclusions about the effect of maternal nativity on the preponderance of male births.

Nativity of Brides and Mothers. Comparison of the per cent distribution of white brides and mothers, by nativity, shows that throughout California a larger portion of the brides than of the mothers were born in this state. Similarly, but in less degree, a larger proportion of the brides than the mothers were natives of other states. On the other hand, a much larger proportion of the mothers than of the brides in California were foreign born.

There is likewise an excess in the per cent born in California among single brides over that among mothers, though there is relatively little difference in the per cents born elsewhere in the United States for single brides and mothers. However, there is a great excess in the per cent born abroad among mothers over that for single brides.

It seems, therefore, that in California, as elsewhere in the United States, the fecundity of foreign born women is greater than that of native women, whether born in California or other states.

Children in Order of Birth. Special tabulations for 1915 show that 36.1 per cent of all babies in California were the first born to the mother, altogether 47.0 per cent were second, third or fourth born, and only 14.0 per cent were for mothers bearing five children or more, the order of birth being unknown for the remaining 2.9 per cent.

The per cent of first born children was 39.5 within chartered cities but only 31.2 outside them; for second, third and fourth born was altogether 46.0 for cities against 48.6 for country districts; and for babies who were the fifth or over was only 11.5 in cities as compared with 17.6 in rural territory.

The per cents for first born babies were highest among twenty leading cities for Stockton, Fresno, San Diego, Santa Barbara, Santa Monica, San Francisco, Eureka, Los Angeles and Alameda.

The proportions for second, third and fourth born children were highest in Watsonville, Richmond, Pasadena, Alameda, Oakland, Berkeley, Riverside, Long Beach, Sacramento and San Bernardino.

The proportions for mothers bearing five babies or more were highest for San Jose, Riverside, San Bernardino, Fresno, Santa Monica, Richmond, San Francisco, Santa Barbara, Eureka and Berkeley.

BIRTHS BY SEX, RACE AND MATERNAL NATIVITY.

Sex.—The following table gives the classification of births by sex, with per cents, for the several geographic divisions in both 1915 and 1914. There are also appended to the table corresponding figures for the freeholders charter cities (numbering thirty-four in 1915 and thirty-two in 1914) in contrast with all the rest of the state.

TABLE 1.—Births Classified by Sex, with Per Cents, for Geographic Divisions,* and for Cities and Rest of State: 1915 and 1914.

Geographic division or population group	Births						Per cent male		Per cent female	
	Total		Male		Female		1915	1914	1915	1914
	1915	1914	1915	1914	1915	1914				
The State	48,075	46,012	24,772	23,792	23,303	22,220	51.5	51.7	48.5	48.3
Northern California	4,562	4,203	2,374	2,213	2,188	1,990	52.0	52.7	48.0	47.3
Coast counties	1,923	1,800	1,010	958	913	851	52.5	53.0	47.5	47.0
Interior counties	2,639	2,394	1,364	1,255	1,275	1,139	51.7	52.4	48.3	47.6
Central California	25,499	24,335	13,186	12,504	12,313	11,831	51.7	51.4	48.3	48.6
San Francisco	7,624	7,646	3,944	3,956	3,680	3,690	51.7	51.7	48.3	48.3
Other bay counties	6,075	5,842	3,119	2,980	2,956	2,802	51.3	51.0	48.7	49.0
Coast counties	3,034	2,671	1,562	1,355	1,472	1,316	51.5	50.7	48.5	49.3
Interior counties	8,768	8,176	4,561	4,213	4,205	3,963	52.0	51.5	48.0	48.5
Southern California	18,014	17,474	9,212	9,075	8,802	8,399	51.1	51.9	48.9	48.1
Los Angeles	12,106	12,378	6,160	6,418	5,946	5,960	50.9	51.9	49.1	48.1
Other counties	5,908	5,096	3,052	2,657	2,856	2,439	51.7	52.1	48.3	47.9
Northern and Central California	30,061	28,538	15,560	14,717	14,501	13,821	51.8	51.6	48.2	48.4
Coast counties	18,656	17,968	9,635	9,249	9,021	8,719	51.6	51.5	48.4	48.5
Interior counties	11,405	10,570	5,925	5,468	5,480	5,102	52.0	51.7	48.0	48.3
Metropolitan area	13,699	13,488	7,063	6,936	6,636	6,552	51.6	51.4	48.4	48.6
Rural counties	16,362	15,050	8,497	7,781	7,865	7,269	51.9	51.7	48.1	48.3
Freeholders' charter cities	28,569	28,594	14,592	14,740	13,977	13,854	51.1	51.5	48.9	48.5
Rest of State	19,506	17,418	10,180	9,052	9,325	8,396	52.2	52.0	47.8	48.0

*For counties included in geographic divisions, see page 186.

The proportion of the sexes among the 48,075 children born in California in 1915 was: Male, 24,772 or 51.5 per cent; and female, 23,303 or 48.5 per cent. Among the 46,012 born in 1912, the proportion of the sexes was: Male, 23,792 or 51.7 per cent; and female, 22,220 or 48.3 per cent. It may be added that for 1906 to 1915 the annual average per cent male was 51.7, and the per cent female was 48.3. The per cent male ranged irregularly through the ten years thus: 52.1 (1906), 51.2, 51.7, 52.3, 52.1, 51.6, 51.4, 51.8, 51.7, and 51.5 (1915).

In 1915 the male births exceeded the female by 1,469 or 6.3 per cent, while in 1914 the excess of boys over girls was 1,572 or 7.1 per cent. The male births exceeded the female in every main and minor geographic division in both 1915 and 1914. The per cent male was highest in both 1915 and 1914 for the coast counties of northern California, 52.5 and 53.0, respectively. The per cent was lowest in 1915 for Los Angeles, 50.9, and in 1914 for the coast counties of central California, 50.7.

The per cents male were somewhat lower for the metropolitan area each year than for the rural counties north of Tehachapi, but were slightly higher for San Francisco alone than for the adjoining bay counties. The per cents male were lower for Los Angeles each year than for the other counties south of Tehachapi.

The figures for cities appended to Table 1 show that among the 28,569 births in freeholders' charter cities in 1915 the proportion of the sexes was: Male, 14,592 or 51.1 per cent; and female, 13,977 or 48.9 per cent. The proportion of the sexes among the 28,594 births in chartered cities in 1914 was: Male, 14,740 or 51.5 per cent; and female, 13,854 or 48.5 per cent.

In California outside chartered cities there were 19,506 births in 1915, classified by sex as follows: Male, 10,180 or 52.2 per cent; and female, 9,326 or 47.8 per cent. For the state outside cities the 17,418 births in 1914 were distributed by sex thus: Male, 9,052 or 52.0 per cent; and female, 8,366 or 48.0 per cent.

The per cents male were somewhat less each year for chartered cities as a class than for all the rest of the state.

Race.—The following table gives the classification of births by race, as well as the per cent white, for the several geographic divisions in 1915 and 1914. There are also included in the table corresponding figures for freeholders' charter cities in contrast with all the rest of the state each year.

TABLE 2.—Births Classified by Race, with Per Cent White, for Geographic Divisions, and for Cities and Rest of State: 1915 and 1914.

Geographic division or population group	Births						Per cent white
	Total	White	Negro	Indian	Chinese	Japanese	
1915.							
The State -----	48,075	43,874	392	38	429	3,342	91.3
Northern California -----	4,562	4,328	9	19	18	188	94.9
Coast counties -----	1,923	1,871		7	1	44	97.3
Interior counties -----	2,639	2,457	9	12	17	144	93.1
Central California -----	25,499	23,092	108	7	369	1,923	90.6
San Francisco -----	7,624	7,147	18		196	263	93.7
Other bay counties -----	6,075	5,635	50	1	73	316	92.8
Coast counties -----	3,084	2,591	5		22	416	85.4
Interior counties -----	8,766	7,719	35	6	78	928	88.1
Southern California -----	18,014	16,454	275	12	42	1,231	91.3
Los Angeles -----	12,106	10,912	225	4	30	935	90.1
Other counties -----	5,908	5,542	50	8	12	296	93.8
Northern and Central Cali- fornia -----	30,061	27,420	117	26	387	2,111	91.2
Coast counties -----	18,656	17,244	78	8	292	1,089	92.4
Interior counties -----	11,405	10,176	44	18	95	1,072	89.2
Metropolitan area -----	13,969	12,782	68	1	269	579	93.3
Rural counties -----	16,362	14,638	49	25	118	1,532	89.5
Freeholders' charter cities -----	28,569	26,406	320	11	345	1,485	92.4
Rest of State -----	19,506	17,466	72	27	84	1,857	89.5
1914.							
The State -----	46,012	42,281	388	51	418	2,874	91.9
Northern California -----	4,203	4,001	4	34	17	147	95.2
Coast counties -----	1,809	1,744	1	22	6	36	96.4
Interior counties -----	2,394	2,257	3	12	11	111	94.3
Central California -----	24,335	22,067	107	7	362	1,772	90.8
San Francisco -----	7,646	7,189	20	1	196	240	94.0
Other bay counties -----	5,842	5,418	50	1	66	307	92.7
Coast counties -----	2,671	2,277	2		19	373	85.2
Interior counties -----	8,176	7,263	35	5	81	852	88.1
Southern California -----	17,474	16,193	277	10	39	955	92.7
Los Angeles -----	12,378	11,398	231	4	28	717	92.1
Other counties -----	5,096	4,795	46	6	11	238	94.1
Northern and Central Cali- fornia -----	28,538	26,088	111	41	379	1,919	91.4
Coast counties -----	17,968	16,628	73	24	287	956	92.5
Interior counties -----	10,570	9,460	38	17	92	963	89.5
Metropolitan area -----	13,488	12,607	70	2	262	547	93.5
Rural counties -----	15,050	13,481	41	39	117	1,372	89.6
Freeholders' charter cities -----	28,594	26,654	328	12	338	1,262	93.2
Rest of State -----	17,418	15,627	60	39	80	1,612	89.7

It appears from this table that the race distribution of the 48,075 births in California in 1915 was: White, 43,874 or 91.3 per cent; Japanese, 3,342; Chinese, 429; negro, 392; and Indian, 38. In 1914 the race distribution of the 46,012 births was: White, 42,281 or 91.9 per cent; Japanese, 2,874; Chinese, 418; negro, 388; and Indian, 51. Each year the Japanese were decidedly the leading non-Caucasian race represented in births, with the Chinese and negroes next in order but far behind, and with Indians barely shown at all. It may be added that for 1906 to 1915 the annual average per cent white was 95.2. Moreover, the per cent white decreased steadily in the whole ten years covered by the present registration system, the successive per cents being as follows: 98.4 (1906), 97.7, 96.8, 96.3, 96.1, 95.5, 94.6, 93.2, 91.9 and 91.3 (1915).

The steady decrease in the proportion of Caucasian babies in California is due mainly to notable increases in the registration of births of Japanese children. The increasing registration of Japanese births has been particularly great in recent years when there has been public agitation as well as actual legislation in California with respect to the ownership of land by aliens. Thus the successive totals for births of Japanese in California have been as follows: 134 (1906), 221, 455, 682, 719, 995, 1,467, 2,215, 2,874, and 3,342 (1915).

In 1915 and 1914 the per cents white were highest for northern California, 94.9 and 95.2, next for southern California, 91.3 and 92.7, and lowest for central California, 90.6 and 90.8. Among the minor geographic divisions the per cents white ranged from 97.3 and 96.4 for the coast counties of northern California in 1915 and 1914, respectively, to merely 85.4 and 85.2 for the coast counties of central California.

The per cents white were greater each year for the metropolitan area than for the rural counties north of Tehachapi and also for the metropolis proper than for the group of suburban counties. However, the per cents white were less for Los Angeles both years than for the other counties of southern California.

The additional figures for cities in Table 2 show that among the 28,569 births in chartered cities in 1915, the race distribution was: White, 26,408 or 92.4 per cent; Japanese, 1,485; Chinese, 345; negro, 320; and Indian, 11. The race distribution of the 28,594 births in cities in 1914 was: White, 26,654 or 93.2 per cent; Japanese, 1,262; Chinese, 338; negro, 328; and Indian, 12.

For the state exclusive of chartered cities, there were 19,506 births in 1915, distributed by race as follows: White, 17,466 or 89.5 per cent; Japanese, 1,857; Chinese, 84; negro, 72; and Indian, 27. There were 17,418 births outside cities in 1914, distributed by race thus: White, 15,627 or 89.7 per cent; Japanese, 1,612; Chinese, 80; negro, 60; and Indian, 39.

In both 1915 and 1914 the per cents white were much greater for births within cities, 92.4 and 93.2, than for births outside them, 89.5 and 89.7. The general decrease in the per cent white, for 1915 as compared with 1914, was common to both chartered cities and rural districts.

Sex and Race.—In the table below births of whites and non-Caucasians are classified by sex, with per cents, for both 1915 and 1914. There were so few births of non-Caucasians in some geographic divisions that figures are presented here only for the thirty-four chartered cities in 1915 and the thirty-two in 1914, as contrasted with the rest of the state.

TABLE 3.—Births Classified by Sex and Race, with Per Cents by Sex, for Cities and Rest of State: 1915 and 1914.

Population group	Births						Per cent male		Per cent female	
	Total		Male		Female					
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
White.										
California	43,874	42,281	22,583	21,791	21,291	20,490	51.5	51.5	49.5	48.5
Freeholders' charter cities	26,408	26,654	13,483	13,724	12,925	12,930	51.1	51.5	48.9	48.5
Rest of State	17,466	15,627	9,100	8,067	8,366	7,560	52.1	51.6	47.9	48.4
Non-Caucasian.										
California	4,201	3,731	2,189	2,001	2,012	1,730	52.1	52.6	47.9	46.4
Freeholders' charter cities	2,161	1,940	1,109	1,016	1,062	924	51.3	52.4	48.7	47.6
Rest of State	2,040	1,791	1,080	985	950	806	52.9	55.0	47.1	45.0

This table shows, in brief, that the preponderance of males was much greater, both within cities and outside them, among the few non-Caucasian births than among the many white births. Thus, in 1915 and 1914, respectively, the per cents male were 52.1 and 53.6 for non-Caucasians against only 51.5 each year for whites in the state as a whole; 51.3 and 52.4 for non-Caucasians against 51.1 and 51.5 for whites in cities as a class; and 52.9 and 55.0 for non-Caucasians against only 52.1 and 51.6 for whites in all the rest of California.

Nativity of White Mothers.—The analysis of births by race may be extended to a consideration of births according to the nativity of white mothers—classified as born in California, born in other states, or foreign born—as given in the following table, by numbers and per cents, for the several geographic divisions in both 1915 and 1914. There are included in the table likewise corresponding figures for freeholders' charter cities as compared with all the rest of the state each year.

TABLE 4.—White Mothers Classified by Nativity, with Per Cents, for Geographic Divisions, and for Cities and Rest of State: 1915 and 1914.

Geographic division or population group	White mothers				Per cent		
	Total	Born in Calif- ornia	Born in other states	Foreign born	Born in Calif- ornia	Born in other states	Foreign born
1915.							
The State	43,874	13,941	16,914	13,019	31.8	38.5	29.7
Northern California	4,828	2,185	1,244	949	49.3	28.8	21.9
Coast counties	1,871	980	411	500	49.7	23.6	26.7
Interior counties	2,457	1,205	803	449	49.0	32.7	18.3
Central California	23,092	8,989	6,415	7,688	38.9	27.8	33.3
San Francisco	7,147	2,835	1,277	3,035	39.7	17.9	42.4
Other bay counties	5,635	2,249	1,503	1,883	39.9	26.7	33.4
Coast counties	2,591	1,192	605	794	46.0	23.4	30.6
Interior counties	7,719	2,713	3,080	1,976	35.1	39.3	25.6
Southern California	16,454	2,817	9,255	4,382	17.1	56.3	26.6
Los Angeles	10,912	1,608	6,242	3,062	14.7	57.2	28.1
Other counties	5,542	1,209	3,013	1,320	21.8	54.4	23.8
Northern and Central Cal- ifornia	27,420	11,124	7,659	8,637	40.6	27.9	31.5
Coast counties	17,244	7,206	3,826	6,212	41.8	22.2	36.0
Interior counties	10,176	3,918	3,833	2,425	38.5	37.7	23.8
Metropolitan area	12,782	5,084	2,780	4,918	39.8	21.7	38.5
Rural counties	14,638	6,040	4,879	3,719	41.3	33.3	25.4
Freeholders' charter cities.....	26,408	8,093	9,828	8,487	30.7	37.2	32.1
Rest of State	17,466	5,848	7,086	4,532	33.5	40.6	25.9
1914.							
The State	42,281	13,097	16,628	12,556	31.0	39.3	29.7
Northern California	4,001	1,953	1,181	867	48.8	29.5	21.7
Coast counties	1,744	840	420	484	48.2	24.1	27.7
Interior counties	2,257	1,113	761	383	49.3	33.7	17.0
Central California	22,087	8,466	6,259	7,362	38.3	28.4	33.3
San Francisco	7,189	2,722	1,328	3,139	37.8	18.5	43.7
Other bay counties	5,418	2,199	1,478	1,741	40.6	27.3	32.1
Coast counties	2,277	1,011	566	700	44.4	24.9	30.7
Interior counties	7,203	2,534	2,887	1,782	35.2	40.1	24.7
Southern California	16,193	2,678	9,188	4,327	16.5	56.8	26.7
Los Angeles	11,398	1,093	6,501	3,204	14.9	57.0	28.1
Other counties	4,795	985	2,687	1,123	20.6	56.0	23.4
Northern and Central Cal- ifornia	26,068	10,419	7,440	8,221	39.9	28.5	31.6
Coast counties	16,628	6,772	3,792	6,064	40.7	22.8	36.5
Interior counties	9,460	3,647	3,648	2,165	38.5	38.6	22.9
Metropolitan area	12,607	4,921	2,806	4,880	39.0	22.3	38.7
Rural counties	13,481	5,498	4,634	3,349	40.8	34.4	24.8
Freeholders' charter cities.....	26,654	7,924	10,185	8,545	29.7	38.2	32.1
Rest of State	15,627	5,173	6,443	4,011	33.1	41.2	25.7

It appears from this table that of the mothers of the white children born in this state totaling 43,874 and 42,281 in 1915 and 1914, respectively, those who were themselves born in other states numbered 16,914 and 16,628; those who were Californians like their children were 13,941 and 13,097; and the foreign born white mothers were 13,019 and 12,556. The per cent distribution of white mothers was as follows for 1915 and

1914, respectively: Other states, 38.5 and 39.3; California, 31.8 and 31.0; and foreign born, 29.7 each year. For 1906 to 1915 the annual average per cents were as follows: Other American, 38.1; Californian, 33.6; and foreign, 28.3.

It may be noted that the per cent of mothers in California who were natives of other states increased in general between 1906 and 1915 as follows: 37.8 (1906), 38.2, 37.2, 36.0, 37.3, 37.4, 39.3, 39.9, 39.3 and 38.5 (1915). The per cent foreign born among white mothers in California also increased generally through the ten years, thus: 25.9 (1906), 26.7, 28.0, 28.5, 28.4, 29.0, 28.8, 28.6, and 29.7 (both 1914 and 1915). However, the per cent of native Californians among women bearing children here decreased considerably during the decade as follows: 36.3 (1906), 35.1, 34.8, 35.5, 34.3, 33.6, 31.9, 31.5, 31.0 and 31.8 (1915).

The proportion of white mothers born in other states is very high for southern California, but is quite low for both northern and central California. The per cents born in other states were somewhat higher in 1915 and 1914 for Los Angeles than for the other counties south of Tehachapi. However, the per cents each year were considerably less for the metropolitan area than for the rural counties north of Tehachapi, and were very much less for San Francisco than for the suburban counties.

The proportion of mothers who were themselves native daughters is very high for northern California as well as for central California in less degree, but is very low, indeed, for southern California. The per cents born in California were much less in 1915 and 1914 for Los Angeles than for the other counties south of Tehachapi. The per cents were likewise somewhat less for the metropolitan area than for the rural counties north of Tehachapi and for San Francisco alone than for the adjoining bay counties.

The proportion of foreign born mothers of the white race is notably high only for central California, the per cents in both 1915 and 1914 being highest by far for San Francisco and above the state averages besides only for the group of other bay counties and the adjacent group of coast counties of central California.

From the additional data for cities in Table 4 it appears that of the 26,408 mothers of white children born in freeholders' charter cities in 1915 altogether 9,828 or 37.2 per cent were natives of other states; 8,487 or 32.1 per cent were foreign born; and 8,093 or 30.7 per cent were natives of California. Of the 26,654 white mothers bearing children in chartered cities in 1914, those born in other states were 10,185 or 38.2 per cent; those born abroad were 8,545 or 32.1 per cent; and those born in California were 7,924 or 29.7 per cent.

For the state outside cities there were 17,466 births of white children in 1915, with mothers born as follows: Other states, 7,086 or 40.6 per cent; California, 5,848 or 33.5 per cent; and foreign countries, 4,532 or 25.9 per cent. In 1914 there were 15,627 white children born in the rural part of the state, with maternal nativity as follows: Other states, 6,443 or 41.2 per cent; California, 5,173 or 33.1 per cent; and foreign, 4,011 or 25.7 per cent.

The per cents American born, whether in California or other states, were less each year for chartered cities than for rural districts, while the per cent foreign born was much greater within cities than outside them. The excess in the per cent of mothers born in this state for rural districts over that for cities was 2.8 in 1915 (33.5 against 30.7), and 3.4 in 1914 (30.1 against 26.7). Similarly, the excess in the per cent born elsewhere in the United States for the rural over the urban districts was 3.4 in 1915 (40.6 against 37.2), and 3.0 in 1914 (41.2 against 38.2). On the other hand, the excess in the per cent foreign born among white mothers in cities over that among mothers in the country districts was no less than 6.2 in 1915 (32.1 against 25.9), and 6.4 in 1914 (32.1 against 25.7).

Both within cities and outside them the women bearing most children in California are those who were themselves born in other states. Foreign born mothers are second for births in chartered cities, but a poor third for births outside cities. California born mothers are a good second for births in the rural districts, and even a close third for births in urban territory.

Sex and Nativity of White Mothers.—In the study of sex and race, also, it was found that the preponderance of male births was much greater among non-Caucasians than among whites. The following table has been prepared to show the proportion of the sexes among children born to white mothers classified by nativity. Only the per cent distribution, by sex, is given here, but the absolute figures are presented, *post*, in Table 14, for geographic divisions, and Table 15, for cities and rest of state.

TABLE 5.—Per Cent Distribution, by Sex, of White Children, with Mothers Classified by Nativity, for Geographic Divisions, and for Cities and Rest of State: 1915 and 1914.

Geographic division or population group	White children											
	Per cent male among those with mothers						Per cent female among those with mothers					
	Born in California		Born in other states		Foreign born		Born in California		Born in other states		Foreign born	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
The State	51.2	51.2	51.5	51.1	51.6	52.4	48.8	48.8	48.5	48.9	48.4	47.6
Northern California	53.1	53.1	52.3	50.2	49.1	54.4	46.9	46.9	47.7	49.8	50.9	45.6
Coast counties	54.3	53.0	53.3	47.6	47.8	55.8	45.7	47.0	46.7	52.4	52.2	44.2
Interior counties	52.1	53.2	51.8	51.6	50.6	52.7	47.9	46.8	48.2	48.4	49.4	47.3
Central California	51.0	50.5	51.3	51.0	52.8	52.1	49.0	49.5	48.7	49.0	47.2	47.9
San Francisco	51.2	51.1	50.7	52.3	52.3	52.1	48.8	48.9	49.3	47.7	47.7	47.9
Other bay counties	51.6	50.9	50.7	49.9	51.2	52.0	48.4	49.1	49.3	50.1	48.8	48.0
Coast counties	50.8	50.1	51.2	50.7	53.5	50.4	49.2	49.9	48.8	49.3	46.5	49.6
Interior counties	50.4	49.6	51.9	51.1	54.6	52.7	49.6	50.4	48.1	48.9	45.4	47.3
Southern California	50.6	52.2	51.5	51.3	50.2	52.5	49.4	47.8	48.5	48.7	49.8	47.5
Los Angeles	48.3	52.3	51.2	51.5	50.8	51.8	51.7	47.7	48.8	48.5	49.2	48.2
Other counties	53.7	52.2	52.1	50.9	48.9	54.5	46.3	47.8	47.9	49.1	51.1	45.5
Northern and Central California	51.4	51.0	51.5	50.9	52.4	52.3	48.6	49.0	48.5	49.1	47.6	47.7
Coast counties	51.7	51.1	51.1	50.6	51.8	52.2	48.3	48.9	48.9	49.4	48.2	47.8
Interior counties	50.9	50.7	51.9	51.2	53.9	52.7	49.1	49.3	48.1	48.8	46.1	47.3
Metropolitan area	51.4	51.0	50.7	51.1	51.9	52.1	48.6	49.0	49.3	48.9	48.1	47.9
Rural counties	51.4	50.9	51.9	50.8	53.0	52.7	48.6	49.1	48.1	49.2	47.0	47.3
Freeholders' charter cities	50.7	51.2	51.1	51.2	51.2	52.1	49.3	48.8	48.9	48.8	48.8	47.9
Rest of state	51.9	51.3	52.0	51.1	52.4	52.9	48.1	48.7	48.0	48.9	47.6	47.1

The per cents of male births in California in 1915 and 1914, respectively, were 51.2 each year for native daughters, 51.5 and 51.1 for mothers born in other states, and 51.6 and 52.4 for foreign born mothers. For 1908 to 1915, the eight year period for which data are available on sex of births classified by maternal nativity, the annual average per cents were as follows: Californians, 51.4; other Americans, 51.7; and foreign born, also 51.7. The per cents for native Californians and other Americans were not far from the same in 1915 and 1914, while the per cents for foreign born mothers were slightly higher than for Californian or other American born mothers in the years mentioned. For earlier years, however, the contrasts were along different lines.

Differences like those just mentioned between the per cents for the state in various years occur also among the per cents for the several geographic divisions in 1915 and 1914, so that it is impossible to draw general conclusions from these figures about the effect of maternal nativity on the preponderance of male births.

From the data for cities appended to Table 5 it appears that in 1915 and 1914, respectively, the per cents of male births were 50.7 and 51.2 for Californian mothers and 51.1 and 51.2 for other Americans, as compared with 51.2 and 52.1 for mothers born abroad. For 1908

to 1915, the annual average per cents male were as follows, according to maternal nativity: California, 51.4; other states, 51.7; and foreign countries, 51.5. That is, in cities where the three elements of the population are about equally represented, the preponderance of male births is not so very far from the same for each of the three classes.

In rural districts, where the foreign born element is least numerous, the per cents male in 1915 and 1914 were 51.9 and 51.3 among children of native daughters and 52.0 and 51.1 among children of other Americans, as compared with 52.4 and 52.9 among children of foreign born mothers. For 1908 to 1915 the annual average per cents male for births to mothers classified by nativity were as follows: Californian, 51.5; other American, 51.7; and foreign, 52.3. The California and other American mothers outnumber by far the foreign born in rural districts, while the preponderance of male births is generally greater in country sections for mothers born abroad than for natives of California or other states.

NATIVITY OF BRIDES AND MOTHERS.

Nativity of White Brides and Mothers.—Some facts of interest are disclosed by a comparison of the nativity of white brides and mothers in California. Accordingly, the following table is presented, giving, for the several geographic divisions in 1915 and 1914, a comparison of the per cent distribution of white brides and white mothers by nativity:

TABLE 6.—Comparison of Per Cent Distribution, by Nativity, of White Brides and White Mothers, for Geographic Divisions: 1915 and 1914.

Geographic division	Per cent born in California			Per cent born in other states			Per cent foreign born		
	White brides	White mothers	Excess for brides over mothers	White brides	White mothers	Excess for brides over mothers	White brides	White mothers	Excess for mothers over brides
1915.									
The State	36.0	31.8	4.2	45.4	38.5	6.9	18.6	29.7	11.1
Northern California	57.7	49.3	8.4	29.3	28.8	0.5	13.0	21.9	8.9
Coast counties	58.5	49.7	8.8	24.8	23.6	1.2	16.7	26.7	10.0
Interior counties	56.9	49.0	7.9	33.9	32.7	1.2	9.2	18.3	9.1
Central California	44.8	38.9	5.9	34.1	27.8	6.3	21.1	33.3	12.2
San Francisco	41.5	39.7	1.8	30.9	17.9	13.0	27.6	42.4	14.8
Other bay counties	47.5	39.9	7.6	33.1	26.7	6.4	19.4	33.4	14.0
Coast counties	52.4	46.0	6.4	32.1	23.4	8.7	15.5	30.6	15.1
Interior counties	44.0	35.1	8.9	39.8	39.3	0.5	16.2	25.6	9.4
Southern California	18.7	17.1	1.6	65.1	56.3	8.8	16.2	26.6	10.4
Los Angeles	16.5	14.7	1.8	66.2	57.2	9.0	17.3	28.1	10.8
Other counties	22.0	21.8	0.2	63.6	54.4	9.2	14.4	23.8	9.4
Northern and Central California	46.5	40.6	5.9	33.5	27.9	5.6	20.0	31.5	11.5
Coast counties	46.4	41.8	4.6	31.2	22.2	9.0	22.4	36.0	13.6
Interior counties	46.7	38.5	8.2	38.5	37.7	0.8	14.8	23.8	9.0
Metropolitan area	43.9	39.8	4.1	31.8	21.7	10.1	24.3	38.5	14.2
Rural counties	49.5	41.3	8.2	35.3	33.3	2.0	15.2	25.4	10.2
1914.									
The State	36.4	31.0	5.4	43.3	39.3	4.0	20.3	29.7	9.4
Northern California	55.6	48.8	6.8	30.7	29.5	1.2	13.7	21.7	8.0
Coast counties	56.0	48.2	7.8	26.1	24.1	2.0	17.9	27.7	9.8
Interior counties	55.3	49.3	6.0	35.5	33.7	1.8	9.2	17.0	7.8
Central California	45.7	38.3	7.4	30.9	28.4	2.5	23.4	33.3	9.9
San Francisco	43.4	37.8	5.6	24.8	18.5	6.3	31.8	43.7	11.9
Other bay counties	48.2	40.6	7.6	30.9	27.3	3.6	20.9	32.1	11.2
Coast counties	52.2	44.4	7.8	28.5	24.9	3.6	19.3	30.7	11.4
Interior counties	43.7	35.2	8.5	38.4	40.1	-1.7	17.9	24.7	6.8
Southern California	19.0	16.5	2.5	63.5	56.8	6.7	17.5	26.7	9.2
Los Angeles	17.4	14.9	2.5	64.0	57.0	7.0	18.6	28.1	9.5
Other counties	21.6	20.6	1.0	62.6	56.0	6.6	15.8	23.4	7.6
Northern and Central California	47.1	39.9	7.2	30.9	28.5	2.4	22.0	31.6	9.6
Coast counties	47.6	40.7	6.9	27.5	22.8	4.7	24.9	36.5	11.6
Interior counties	46.1	38.5	7.6	37.8	38.6	-0.8	16.1	22.9	6.8
Metropolitan area	45.5	39.0	6.5	27.5	22.3	5.2	27.0	38.7	11.7
Rural counties	48.7	40.8	7.9	34.3	34.4	-0.1	17.0	24.8	7.8

This table shows that the per cents born in California were considerably greater in 1915 and 1914 among brides than among mothers, and the per cents born in other states were likewise greater, though in different degree, among brides than among mothers. On the other hand, the per cents foreign born were much greater each year for white mothers than for white brides.

Comparison of the annual average per cents for the state as a whole in 1906 to 1915 also indicates that among native daughters the excess in the per cent for brides over that for mothers was 5.2 (38.8 against 33.6); among other Americans the excess in the per cent for brides over that for mothers was 3.6 (41.7 against 38.1); and among the foreign born the converse excess in the per cent for mothers over that for brides was as great as 8.8 (28.3 against 19.5).

Reference to the preceding table shows that the excess in the per cent born in California among brides over that among mothers was 4.2 in 1915 (36.0 against 31.8) and 5.4 in 1914 (36.4 against 31.0). In every main and minor geographic division in both 1915 and 1914 a larger per cent of white brides than of white mothers were natives of this state.

The excess in the per cent born in California for brides over that for mothers was much greater for the counties north of Tehachapi than for those to the south. However, the proportion of native daughters among both brides and mothers is much greater anyway in northern and central California than in southern California. The excess in the per cents for brides over those for mothers was somewhat less for the metropolitan area than for the rural counties north of Tehachapi. The excess was likewise less for the metropolis proper than for the suburban counties.

Reference to the table indicates that the excess in the per cent born in other states for brides over that for mothers was 6.9 in 1915 (45.4 against 38.5) and 4.0 in 1914 (43.3 against 39.3). Except only for the interior counties of central California in 1914 alone, the several main and minor geographic divisions showed in both 1915 and 1914 that a larger per cent of the white brides than of the white mothers in California were born in other states.

The excess in the per cent born in other states for brides over that for mothers was considerably greater for the counties south of Tehachapi than for those to the north. It must be remembered, however, that the proportion of both brides and mothers born in other states is particularly great for southern California, but relatively small for northern as well as central California. In the metropolitan area a much larger proportion of the brides than of the mothers were born elsewhere in the United States; in the rural counties north of Tehachapi, however, the excess in the per cent for brides was very small for 1915, while for 1914 there was even a slight excess in the per cent for mothers. The excess in the per cent born in other states among brides over that among mothers was considerably greater for San Francisco than for the other bay counties.

Further reference to the table shows that the per cent born abroad among mothers exceeded that among brides by 11.1 in 1915 (29.7

against 18.6) and by 9.4 in 1914 (29.7 against 20.3). In every geographic division each year a much larger per cent of the white mothers than of the white brides were foreign born.

The marked excess in the per cent foreign born among mothers over that among brides was greatest in central California; next in southern California; and least in northern California. It is in these geographic divisions that the proportions foreign born among both mothers and brides are likewise greatest in the same order as here stated for the excess of foreign mothers over foreign brides. In the metropolitan area, where the foreign born element mainly abounds, the excess in the per cent of foreign born mothers over that of foreign born brides was much greater than for the rural counties north of Tehachapi. However, while San Francisco has a much larger proportion of foreign born inhabitants than the other bay counties, yet the excess in the per cent of foreign born mothers over that of foreign brides was barely greater for the metropolis proper than for the suburban counties.

Nativity of Single White Brides and White Mothers.—Since the marriages in which the brides were single are more apt to be blessed with children than those in which the brides were widowed or divorced, it may be even more instructive to compare the nativity of white mothers, not merely with that of all white brides, but rather with the nativity of the single white brides alone. The following table has, therefore, been prepared to show, for the several geographic divisions in 1915 and 1914, a comparison of the per cent distribution, by nativity, of single white brides and white mothers:

TABLE 7.—Comparison of Per Cent Distribution, by Nativity, of Single White Brides and White Mothers, for Geographic Divisions: 1915 and 1914.

Geographic Division	Per cent born in California			Per cent born in other states			Per cent foreign born		
	Single white brides	White mothers	Excess for single brides over mothers	Single white brides	White mothers	Excess for single brides over mothers	Single white brides	White mothers	Excess for mothers over single brides
1915.									
The State	39.0	31.8	7.2	42.6	38.5	4.1	18.4	29.7	11.5
Northern California	62.0	49.3	12.7	26.1	28.2	-2.7	11.9	21.9	10.0
Coast counties	63.5	48.7	13.8	20.9	23.6	-2.7	15.6	26.7	11.1
Interior counties	60.5	49.0	11.5	31.3	32.7	-1.4	8.2	18.3	10.1
Central California	48.1	38.9	9.2	36.7	27.5	2.9	21.2	23.3	12.1
San Francisco	44.4	30.7	4.7	26.5	17.9	8.6	29.1	42.4	13.5
Other bay counties	51.3	39.9	11.4	29.6	26.7	2.9	19.1	33.4	14.3
Coast counties	56.9	46.0	10.9	28.0	23.4	4.6	15.1	30.6	15.5
Interior counties	46.7	35.1	11.6	37.8	30.3	-1.5	15.5	25.6	10.1
Southern California	20.7	17.1	3.6	63.4	54.3	7.1	15.9	26.6	10.7
Los Angeles	18.2	14.7	3.5	65.2	57.2	8.0	16.6	28.1	11.5
Other counties	24.7	21.8	2.9	60.6	54.4	6.2	14.7	23.8	9.1
Northern and Central California	49.9	40.6	9.3	30.1	27.9	2.2	20.0	31.5	11.5
Coast counties	50.1	41.8	8.3	27.1	22.2	4.9	22.8	36.0	13.2
Interior counties	49.6	38.5	11.1	36.4	37.7	-1.3	14.0	23.8	9.8
Metropolitan area	47.3	39.8	7.5	27.7	21.7	6.0	25.0	38.5	13.5
Rural counties	53.0	41.3	11.7	32.6	33.3	-0.7	14.4	25.4	11.0
1914.									
The State	39.3	31.0	8.3	40.1	39.3	0.8	20.6	29.7	8.1
Northern California	58.8	48.8	10.0	27.6	29.5	-1.9	13.6	21.7	8.1
Coast counties	59.3	48.2	11.1	22.5	24.1	-1.6	18.2	27.7	9.5
Interior counties	58.3	49.3	9.0	32.9	33.7	-0.8	8.8	17.0	8.2
Central California	48.9	38.3	10.6	27.5	28.4	-0.9	23.6	23.3	9.7
San Francisco	46.2	37.8	8.4	21.1	18.5	2.6	32.7	43.7	11.0
Other bay counties	51.5	40.6	10.9	27.5	27.3	0.2	21.0	32.1	11.1
Coast counties	56.8	44.4	12.4	25.0	24.9	0.1	18.2	30.7	12.5
Interior counties	46.7	35.2	11.5	35.5	40.1	-4.6	17.8	24.7	6.9
Southern California	21.3	16.5	4.8	60.9	56.8	4.1	17.8	26.7	8.9
Los Angeles	19.3	14.9	4.4	61.7	57.0	4.7	19.0	28.1	9.1
Other counties	24.8	20.6	4.2	56.5	56.0	3.5	15.7	23.4	7.7
Northern and Central California	50.3	39.9	10.4	27.5	28.5	-1.0	22.2	31.6	9.4
Coast counties	50.8	40.7	10.1	23.9	22.8	1.1	25.3	36.5	11.2
Interior counties	49.1	38.5	10.6	34.9	38.6	-3.7	16.0	22.9	6.9
Metropolitan area	48.4	39.0	9.4	23.9	22.3	1.6	27.7	38.7	11.0
Rural counties	52.1	40.8	11.3	31.1	34.4	-3.3	16.8	24.8	8.0

When the contrast is drawn between the nativity of single white brides and of white mothers, the excess heretofore noted in the per cents foreign born among mothers over brides is found also in the per cents for mothers over the single brides alone. However, while the per cents born in other states were considerably greater for all brides than for mothers in both 1915 and 1914, the per cents born elsewhere in the United States were notably greater for single white brides than for white mothers only in 1915, being also greater, but only slightly so, for single white brides than for white mothers in 1914. On the other hand, the excess in the per cent born in California among brides as compared with mothers remains very great when the widowed and divorced brides are eliminated and only the single brides are considered.

It appears from Table 7 that the single white brides surpassed the white mothers in the per cents born in California and in other states, though in much greater degree for California than for other Americans, while the mothers surpassed greatly the single brides in the per cent foreign born each year. Generally speaking, there was a marked excess in the per cent born in California among single brides over that among mothers; relatively little difference in the per cents born elsewhere in the United States for single brides and mothers; and a very great excess in the per cent born abroad among mothers over that for single brides.

Comparison of the annual average per cents for California in 1906 to 1915 shows that among native daughters the excess in the per cent for single brides over that for mothers was as great as 8.0 (41.6 against 33.6); among other Americans the excess in the per cent for single brides over that for mothers was merely 0.8 (38.9 against 38.1); and among the foreign the converse excess in the per cent for mothers over that for single brides was no less than 8.8 (28.3 against 19.5).

Reference to the preceding table shows that the excess in the per cent of native daughters among single white brides over that among mothers was 7.2 in 1915 (39.0 against 31.8), and was 8.3 in 1914 (39.3 against 31.0). In all parts of the state both years a considerably larger proportion of the single white brides than of the mothers were born in California.

The excess in the per cent born in California among single brides over that among mothers was much greater for northern and central California than for southern California. In all cases, however, the proportions born in the Golden State are much greater for the counties north of Tehachapi than for those to the south. The excess in the per cents born in California for single brides over those for mothers was somewhat less for the metropolitan area than for the rural counties north of Tehachapi and was likewise less for San Francisco than for the other bay counties.

Reference to Table 7 shows that the excess in the per cent of single white brides born in other states over that for white mothers was 4.1 in 1915 (42.6 against 38.5), but was merely 0.8 in 1914 (40.1 against 39.3). Moreover, this excess for single brides over mothers was confined in both years to San Francisco, the other bay counties and the adjoining coast counties of central California, as well as to southern California besides. For northern California and for the interior counties of central California the per cents born elsewhere in the

United States were somewhat greater each year among mothers than among single brides.

The relatively small excess in the per cent born in other states among single brides over that among mothers shown for the state in 1915 and 1914 was limited, therefore, practically to the metropolitan area north of Tehachapi, especially San Francisco alone, and to southern California as a whole, being particularly great in Los Angeles. For the rural counties of northern and central California, on the other hand, there was an excess in the per cents born elsewhere in the United States among mothers over the per cents among single brides.

Further reference to Table 7 indicates that the per cent born abroad for mothers surpassed that for single brides by 11.3 in 1915 (29.7 against 18.4) and by 9.1 in 1914 (29.7 against 20.6). In every geographic division each year the per cent foreign born was decidedly higher for white mothers than for single white brides.

The decided excess in the per cent foreign born among mothers over that among single brides was greatest in central California; next in southern California; and least in northern California. It is in central, southern, and northern California, in the order stated for the excess of mothers, that the per cents foreign born are likewise greatest among both mothers and brides. In the metropolitan area, where the foreign born element is especially prominent, the excess in the per cent foreign born for mothers over that for single brides was somewhat greater than for the rural counties north of Tehachapi. Yet while the foreign born population is massed in San Francisco more than in the suburbs, the excess in the per cent born abroad among mothers over that among single brides was slightly less for the main city each year than for the suburban counties.

The comparison of the nativity of white brides and mothers here made gives a rough measure of the relative fecundity of American and foreign born women in California. The figures indicate that in this state, as in the whole country, the foreign born women are more prone to bear children than are the American born, whether natives of California or of other states, for the proportion foreign born is much greater among mothers than among brides, whether the comparison is made for all brides or only the single ones. However, the proportion born elsewhere in the United States than California is considerably less among mothers than among all brides, though about the same for mothers as for single brides alone. The proportion born in the Golden State, moreover, is also considerably less among mothers than among either all or only the single brides.

The growing completeness of birth registration in California under the new law in effect from August 8, 1915, will make possible more accurate comparisons of the occurrence of births in different elements of the population. The remarkable increase in Japanese births in California in recent years is explained by the eagerness of Japanese to register births for special reasons connected with the right of land ownership here. In the absence of similar urgent necessity as yet for the registration of births of white children for the sake of their enjoyment in later years of the privilege of school attendance or the right to begin working for money, the relative completeness of the registration of births among different elements of the Caucasian population

must depend upon the general enforcement of birth registration requirements throughout the state as a whole.

The registration of births in California since 1905, when the system of state records was first established, does not seem to have been quite so complete as the registration of marriages. The former deficiency in the registration of births was probably greatest for births in the families of Californians and other Americans, since foreign born families from training abroad appear to realize the importance of promptly registering the births of their children. This deficiency in the registration of the births of children born to American mothers may account in part for the fact that comparison of per cents for brides and mothers in 1915 and 1914, as well as in the ten year period 1906 to 1915, indicates that the fecundity of foreign born women is greater than that of native women. However, the recent data for California agree with the results of earlier statistical investigations in other states, so that it is quite safe to conclude that foreign born women surpass the natives, whether born in California or elsewhere, in the proclivity to bear children.

CHILDREN IN ORDER OF BIRTH.

Geographic Divisions.—Special tabulations have been made for California in 1915 of births according to the number of children born to each mother. The data available for geographic divisions is presented in Table 8, below, together with per cents for convenience in making comparisons, but similar figures for individual counties may be obtained from Table 16, *post*.

TABLE 2.—Births Classified by Number of Children Born to Mother, with Per Cents, for Geographic Divisions: 1915.

Geographic division	Total live births 1915	Number of children born to mother, including birth reported											
		One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten or more	Un- known	
Numbers.													
The State	48,975	17,389	11,718	6,741	4,152	2,510	1,533	1,015	642	414	621	1,386	
Northern California	4,502	1,454	1,098	686	444	314	151	130	74	43	61	113	
Coast counties	1,923	638	440	280	201	114	55	42	33	21	21	40	
Interior counties	2,579	816	658	406	243	200	96	88	41	22	40	73	
Central California	25,499	9,310	6,259	3,632	2,209	1,284	817	517	338	212	311	640	
San Francisco	7,424	3,098	1,826	909	600	348	207	146	70	63	79	210	
Other bay counties	6,055	2,239	1,600	902	516	298	161	104	79	41	64	108	
Coast counties	3,034	998	726	481	276	172	117	79	47	37	45	54	
Interior counties	8,766	2,975	2,107	1,280	817	498	332	188	142	71	123	223	
Southern California	18,014	6,506	4,361	2,429	1,500	912	565	308	230	150	249	446	
Los Angeles	12,106	4,577	2,985	1,584	960	554	328	216	150	92	155	315	
Other counties	5,908	2,019	1,376	845	550	356	237	152	80	67	94	130	
Northern and Central California	30,061	10,764	7,257	4,312	2,653	1,598	988	647	412	255	372	753	
Coast counties	18,656	6,971	4,612	2,632	1,593	900	540	391	229	162	309	417	
Interior counties	11,405	3,793	2,745	1,680	1,060	698	428	256	183	93	163	336	
Metropolitan area	13,699	5,337	3,426	1,871	1,116	614	368	250	149	104	143	321	
Rural counties	16,302	5,427	3,931	2,441	1,537	984	600	397	263	151	229	432	
Per cents.													
The State	100.0	36.1	24.4	14.0	8.6	5.2	3.2	2.1	1.3	0.9	1.3	2.9	
Northern California	100.0	31.9	24.1	14.9	9.7	6.9	3.3	2.9	1.6	0.9	1.3	2.5	
Coast counties	100.0	33.1	23.9	14.6	10.4	5.9	2.9	3.2	1.7	1.1	1.1	2.1	
Interior counties	100.0	31.0	24.2	15.2	9.2	7.6	3.6	2.6	1.5	0.8	1.5	2.8	
Central California	100.0	36.5	24.5	14.3	8.7	5.1	3.2	2.0	1.3	0.8	1.2	2.4	
San Francisco	100.0	40.6	24.0	12.7	7.9	4.6	2.7	1.9	0.9	0.8	1.0	2.9	
Other bay counties	100.0	36.9	26.3	14.8	8.5	4.4	2.6	1.7	1.3	0.7	1.1	1.7	
Coast counties	100.0	32.9	23.9	15.9	9.1	5.7	3.9	2.6	1.5	1.2	1.5	1.8	
Interior counties	100.0	33.9	24.0	14.6	9.3	5.7	3.8	2.2	1.6	0.8	1.4	2.7	
Southern California	100.0	36.6	24.2	13.5	8.3	5.1	3.1	2.0	1.3	0.9	1.4	2.6	
Los Angeles	100.0	37.8	24.7	13.1	7.8	4.6	2.7	1.8	1.2	0.8	1.3	2.3	
Other counties	100.0	34.2	23.3	14.3	9.3	6.1	4.0	2.6	1.3	1.1	1.6	2.3	
Northern and Central California	100.0	35.8	24.5	14.3	8.8	5.3	3.2	2.2	1.4	0.9	1.2	2.4	
Coast counties	100.0	37.4	24.7	14.1	8.6	4.8	2.9	2.1	1.2	0.9	1.1	2.2	
Interior counties	100.0	33.3	24.1	14.7	9.3	6.1	3.8	2.2	1.6	0.8	1.4	2.7	
Metropolitan area	100.0	39.0	25.0	13.7	8.1	4.5	2.7	1.8	1.1	0.8	1.0	2.3	
Rural counties	100.0	33.2	24.0	14.9	9.4	6.0	3.7	2.4	1.6	0.9	1.4	2.5	

Reference to the per cents given in Table 8 shows that for California in 1915 some 36.1 per cent of all babies were the first born to the mother, 24.4 were the second born, 14.0 per cent were third born and 8.6 per cent were fourth born. As compared with 36.1 per cent for first born babies, the total was 47.0 for those who were the second, third or fourth born to the mother. Altogether 83.1 per cent of the births were in families with but one to four offspring as compared with merely 14.0 per cent for mothers bearing as many as five children or more, the order of birth being unknown for the remaining 2.9 per cent.

The per cent for babies who were only the first born to the mother is highest among geographic divisions for San Francisco, 40.6; next for Los Angeles, 37.8; and then for the group of other bay counties (including Alameda), 36.9. The per cent of first-born babies was much greater for the whole metropolitan area, 39.0, than for the rural counties north of Tehachapi, 33.2.

The aggregate per cent for babies who were the second, third or fourth born to the mother, however, was only 46.8 for the metropolitan area against 48.3 for the rural counties of northern and central California. The aggregate per cent for second, third and fourth-born babies was much less for San Francisco alone, 44.6, than for the group of suburban counties, 49.6. The aggregate per cent was also somewhat less for Los Angeles, 45.6, than for the rest of southern California, 46.9.

Similarly, the aggregate per cent for babies who were the fifth and over born to the mother was only 11.9 for the metropolitan area against 16.0 for the rural counties south of Tehachapi. The per cents for mothers bearing five children or more totaled virtually the same for San Francisco, 11.9, as for the adjoining bay counties, 11.8. However, the aggregate per cent was only 12.4 for Los Angeles as compared with 16.7 for the other counties south of Tehachapi.

Cities and Rest of State.—Table 9 presents corresponding data for the thirty-four freeholders' charter cities of California in 1915 in contrast with all the rest of the state, as well as for selected leading cities with at least 200 births in the year. Figures for cities not shown in Table 9 may be obtained from Table 17, *post*, among the general tables on statistics of births.

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 2.—Births Classified by Number of Children Born to Mother, with Per Cent. for Cities and Rest of State and for Selected Leading Cities: 1915.

City With at least 200 births reported.	Total live births 1915	Number of children born to mother, including stills reported										
		One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten or more	Un- known
Numbers												
California	6,635	1,380	1,575	678	435	230	152	105	62	24	61	138
Freeholders' charter cities	3,300	1,170	1,130	274	221	120	74	50	32	26	20	55
Northern California												
Eureka	25	26	61	25	21	12	4	4	5	1	1	4
Central California:												
San Francisco	7,024	1,800	1,885	300	600	205	207	106	70	63	70	213
Alameda	661	170	121	67	65	11	7	4	3	4	5	8
Berkeley	705	205	202	100	61	20	15	16	12	5	7	—
Oakland	1,917	1,174	305	463	222	130	57	68	32	21	27	50
Richmond	225	95	35	54	34	17	9	7	5	1	2	—
San Jose	500	153	124	74	53	35	20	22	11	11	6	5
Watsonville	215	71	70	63	20	5	—	—	—	—	1	2
Fresno	78	204	104	97	65	25	25	11	10	4	13	6
Sacramento	1,254	600	341	157	100	65	41	21	13	8	6	20
Stockton	154	225	100	73	34	10	11	14	6	1	4	15
Southern California:												
Los Angeles	7,207	1,334	1,935	965	547	235	105	125	32	65	74	607
Long Beach	446	174	120	61	35	13	12	5	7	4	5	9
Pasadena	602	205	177	87	65	17	21	12	3	5	6	6
Pomona	201	77	25	31	24	9	7	3	—	1	1	10
Santa Monica	200	32	65	25	17	9	6	6	3	—	2	3
Riverside	274	87	67	42	25	16	11	9	8	—	4	5
San Bernardino	370	131	90	56	30	21	11	12	7	5	5	2
San Diego	1,025	417	271	133	64	45	29	17	7	6	4	25
Santa Barbara	255	121	51	44	25	13	9	5	3	2	3	19
Rest of State	19,506	6,082	4,579	2,967	1,932	1,202	779	695	230	200	228	513
Per cents.												
California	100.0	36.1	24.4	14.0	8.6	5.2	3.3	2.1	1.3	0.9	1.3	2.9
Freeholders' charter cities	100.0	39.5	25.0	13.2	7.5	4.3	2.6	1.8	1.1	0.7	1.0	1.9
Northern California:												
Eureka	100.0	40.5	25.7	11.8	8.9	5.1	1.7	1.7	2.1	0.4	0.4	1.7
Central California:												
San Francisco	100.0	40.6	24.0	12.7	7.9	4.6	2.7	1.9	0.9	0.8	1.0	2.9
Alameda	100.0	49.2	25.0	15.1	10.2	2.5	1.6	0.9	0.7	0.9	1.1	1.5
Berkeley	100.0	39.9	26.5	14.2	8.2	3.9	2.0	2.1	1.6	0.7	0.9	—
Oakland	100.0	58.9	27.0	14.7	7.4	3.9	1.9	1.6	1.1	0.7	0.9	1.9
Richmond	100.0	29.9	29.9	16.5	10.4	5.2	2.7	2.1	2.4	0.3	0.6	—
San Jose	100.0	31.5	22.1	12.2	10.3	6.4	3.6	3.9	2.0	2.0	1.1	0.9
Watsonville	100.0	32.6	32.1	19.7	9.2	2.3	2.7	—	—	—	0.5	0.9
Fresno	100.0	41.6	23.2	13.7	6.8	5.0	3.5	1.6	1.4	0.6	1.8	0.3
Sacramento	100.0	39.1	27.2	12.5	8.0	3.7	3.3	1.7	1.0	0.6	0.5	2.4
Stockton	100.0	42.4	25.3	13.2	6.1	3.3	2.0	2.5	1.1	0.2	0.7	3.2
Southern California:												
Los Angeles	100.0	40.5	24.5	12.2	6.9	4.1	2.3	1.6	1.0	0.6	1.1	3.2
Long Beach	100.0	39.0	26.9	13.7	8.1	2.9	2.7	1.1	1.6	1.1	0.9	2.0
Pasadena	100.0	34.1	29.4	14.4	10.5	2.8	3.5	2.0	0.5	0.8	1.0	1.9
Pomona	100.0	38.3	18.9	15.4	11.9	4.5	3.5	1.5	—	0.5	0.5	5.0
Santa Monica	100.0	41.0	23.0	13.0	8.5	4.5	3.0	3.0	1.5	—	1.5	1.0
Riverside	100.0	31.8	24.5	15.3	9.1	5.8	4.0	3.3	2.9	—	1.5	1.3
San Bernardino	100.0	35.4	24.3	15.1	8.1	5.7	3.0	3.2	1.9	1.4	1.4	0.5
San Diego	100.0	41.0	26.6	13.1	6.3	4.4	2.8	1.7	0.7	0.5	0.4	2.5
Santa Barbara	100.0	41.0	17.3	14.9	8.5	4.4	3.1	1.7	1.0	0.7	1.0	6.4
Rest of State	100.0	31.2	23.5	15.2	9.9	6.6	4.0	2.5	1.7	1.1	1.7	2.6

Comparison of the per cents in Table 9 for the thirty-four freeholders' charter cities as a class in contrast with all the rest of the state as a whole indicates that the per cent of first-born children was 39.5 for the chartered cities, as compared with only 31.2 for all the rest of the state, and that the per cent of second-born children was 25.0 for these cities, against only 23.5 for the outside territory. On the other hand, the per cents were greater for country districts than for cities as a class for mothers bearing children to the number of three, four, five, etc., to ten or more. Hence, for children who were only the first or second born to each mother the per cents totaled 64.5 for cities, in contrast with only 54.7 for country districts. For children who were the third or over born to each mother, however, the per cents for cities totaled merely 32.5, but for country districts were no less than 42.7.

Although the birth total was much greater in 1915 for chartered cities than for country districts, 28,569 against 19,506, yet the number was actually less within cities than outside them for births which were the fifth born (only 1,218 for cities, against 1,292 for country districts), sixth born (754 against 779), eighth born (312 against 330), ninth born (205 against 209), and tenth or over (293 against 328).

For births which were the fifth or over for each mother the total was only 3,302, or merely 11.5 per cent of all, in cities, as compared with 3,433, or 17.6 per cent of all, in country districts.

A brief summary shows that the per cent of first born children was 39.5 within chartered cities, but only 31.2 outside them; for second, third and fourth born was altogether 46.0 for cities against 48.6 for country districts; and for babies who were the fifth or over was merely 11.5 in cities as compared with 17.6 in rural territory.

It seems therefore that in cities, to which population has been drifting from country districts, the number of children born to each mother is considerably less than in the outside or rural territory. With city families relatively small, the population of cities must continue to grow largely by migration from country districts or even by immigration from foreign countries.

The per cents shown in Table 9 for selected leading cities with at least 200 births reported for 1915 are presented to permit of the making of some comparisons between such cities with respect to the number of children born to mothers.

Among the twenty leading cities with at least 200 births reported for 1915 the per cents for babies who were only the first born to the mother were highest as follows: Stockton, 42.4; Fresno, 41.6; San Diego, Santa Barbara and Santa Monica, each 41.0; San Francisco, 40.6; Eureka and Los Angeles, each 40.5; and Alameda, 40.2.

The aggregate per cents for second, third and fourth born children were highest as follows among the twenty cities: Watsonville, 61.0; Richmond, 56.8; Pasadena, 54.3; Alameda, 50.3; Oakland, 49.1; Berkeley and Riverside, each 48.9; Long Beach, 48.7; Sacramento, 47.7; and San Bernardino, 47.5.

The aggregate per cents for mothers bearing five children or more were highest among the leading cities as follows: San Jose, 19.0; Riverside, 17.5, San Bernardino, 16.6; Fresno, 13.9; Santa Monica, 13.5; Richmond, 13.3; San Francisco and Santa Barbara, each 11.9; Eureka, 11.4; and Berkeley, 11.2.

TABLE 10.—Births Classified by Sex and Race, and by

County	Total live births	Male	Female	White			Negro	Indian
				Total	Male	Female		
California	48,075	24,772	23,303	43,874	22,583	21,291	302	35
Alameda	4,000	2,315	2,255	4,214	2,188	2,076	47	1
Alpine	4	2	2	4	2	2		
Amador	139	64	75	138	61	74		
Butte	513	265	248	487	249	238	1	2
Calaveras	71	37	32	71	39	32		
Colusa	140	68	72	135	66	69		
Contra Costa	707	382	325	675	368	307	1	
Del Norte	53	28	25	52	27	25		1
El Dorado	102	50	52	101	49	52		
Fresno	1,983	1,068	915	1,728	937	791	9	
Glenn	106	59	47	105	59	46		
Humboldt	448	220	228	446	219	227		2
Imperial	421	232	189	384	209	175	7	
Inyo	18	8	10	16	7	9		
Kern	685	361	324	655	347	300	5	
Kings	350	169	181	310	152	158		
Lake	82	42	40	81	42	39		
Lassen	110	62	48	110	62	48		
Los Angeles	12,106	6,100	5,946	10,912	5,529	5,383	225	4
Madera	197	91	106	195	89	106	1	1
Marin	271	134	137	266	132	134		
Mariposa	31	20	11	29	18	11		1
Mendocino	357	186	172	350	181	169		3
Merced	391	232	159	384	226	158		1
Modoc	110	57	53	109	56	53		1
Mono	1		1	1		1		
Monterey	360	176	184	292	145	147		
Napa	207	107	100	206	106	100		
Nevada	187	98	89	186	98	88		
Orange	1,185	635	550	1,094	590	504	2	
Placer	374	203	171	290	150	140	1	
Plumas	59	27	32	56	28	30		1
Riverside	611	300	311	569	276	293	15	3
Sacramento	1,628	810	818	1,264	629	635	3	3
San Benito	213	101	112	164	78	86	1	
San Bernardino	1,211	609	602	1,166	588	578	8	4
San Diego	1,472	737	735	1,422	712	710	13	1
San Francisco	7,624	3,944	3,680	7,147	3,691	3,456	18	
San Joaquin	1,031	519	512	854	428	426	6	
San Luis Obispo	313	160	144	297	159	138	1	
San Mateo	497	258	239	480	249	231	2	
Santa Barbara	590	312	278	524	286	238	4	
Santa Clara	1,673	879	794	1,495	789	706	3	
Santa Cruz	475	237	238	343	170	173		
Shasta	251	119	132	249	118	131	1	1
Sierra	38	18	20	38	18	20		
Siskiyou	307	151	156	301	148	153		6
Solano	400	221	178	339	197	142	6	
Sonoma	745	412	333	705	388	317		1
Stanislaus	616	329	287	606	321	285		
Sutter	119	62	57	109	58	51		1
Tehama	166	83	83	162	82	80		
Trinity	31	16	15	31	16	15		
Tulare	828	426	402	778	396	383	2	
Tuolumne	51	27	24	51	27	24		
Ventura	418	227	191	383	204	179	1	
Yolo	240	122	118	194	98	101	3	
Yuba	159	92	67	130	81	49	6	

Sex and Nativity of Mothers, for Counties; 1915.

Chinese	Japa- nese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
429	3,842	13,941	7,144	6,797	16,914	8,712	8,202	13,019	6,723	6,296
71	267	1,747	895	852	1,223	624	599	1,244	619	625
		8	1	2	1	1				
1		76	38	38	13	5	8	49	21	28
3	20	216	112	104	208	109	99	63	28	35
		45	22	23	14	9	5	12	8	4
2	3	94	48	46	30	11	19	11	7	4
	31	217	129	94	152	74	78	306	171	135
		13	8	5	25	14	11	14	5	9
	1	63	28	35	22	15	7	16	6	10
6	238	391	207	184	766	401	365	571	329	242
	1	34	18	16	55	34	21	16	7	9
		197	101	96	98	45	53	151	73	78
	30	35	21	14	274	144	130	75	44	21
	2	12	6	6	4	1	3			
11	13	151	76	75	370	196	174	135	75	60
13	27	120	53	67	118	57	61	72	42	30
	1	49	26	23	23	11	12	9	5	4
		52	31	21	33	16	17	25	15	10
30	935	1,008	777	881	6,242	3,197	3,045	3,062	1,555	1,507
		72	38	34	63	22	41	60	29	31
1	4	114	52	62	44	24	20	108	56	52
	1	20	11	9	8	6	2	1	1	
	4	108	107	86	63	33	30	94	41	53
2	4	116	71	45	123	70	53	145	85	60
		65	34	31	39	20	19	5	2	3
								1		1
5	63	156	79	77	52	27	25	84	39	45
	1	114	67	47	52	23	29	40	16	24
1		100	48	52	39	20	19	47	30	17
	89	219	134	85	617	316	301	258	140	118
5	88	125	61	64	75	44	31	80	45	35
1	1	29	14	15	17	7	10	10	5	5
	24	95	40	55	336	166	170	138	70	68
23	335	552	278	274	381	183	198	331	166	163
3	45	111	51	60	22	11	11	31	16	15
	33	204	107	97	651	339	312	311	142	169
4	32	277	139	138	327	425	392	318	138	180
196	263	2,536	1,451	1,384	1,277	646	629	3,035	1,588	1,447
13	158	410	197	213	265	133	132	179	98	81
1	14	177	95	82	56	26	30	64	38	26
1	14	171	90	81	84	40	44	225	119	106
6	56	235	130	105	147	82	65	142	74	68
8	167	592	307	285	379	198	181	524	284	240
5	127	156	74	82	96	48	48	91	48	43
		126	62	64	81	38	43	42	18	24
		81	13	18	3	1	2	4	4	
		117	65	52	83	40	43	101	43	58
5	50	165	86	79	91	59	32	83	52	31
1	38	337	183	154	176	106	70	192	99	93
	10	177	95	82	297	156	141	132	70	62
1	8	62	30	32	82	18	14	15	10	5
1	8	74	39	35	76	37	39	12	6	6
		27	13	14	4	3	1			
1	47	206	98	108	426	222	204	146	75	71
		30	15	15	3	5	3	13	7	6
2	32	144	78	66	161	89	72	78	37	41
1	42	104	48	56	60	33	28	30	13	17
3	20	80	38	27	32	21	11	18	7	11

TABLE 11.—Births Classified by Sex and Race, and

County	Total live births	Male	Female	White			Negro	Indian
				Total	Male	Female		
California	46,012	23,792	22,220	42,281	21,791	20,490	388	51
Alameda	4,519	2,302	2,217	4,141	2,112	2,029	46	1
Alpine	4	3	1	4	3	1		
Amador	122	65	57	122	65	57		
Butte	472	240	232	453	231	222		
Calaveras	76	40	36	74	39	35		2
Colusa	125	64	61	117	59	58		1
Contra Costa	573	277	296	549	264	285	2	
Del Norte	39	17	22	39	17	22		
El Dorado	94	50	44	92	49	43		
Fresno	1,827	901	926	1,549	752	797	13	
Glenn	120	65	55	118	64	54		
Humboldt	508	276	232	497	268	229	1	10
Imperial	324	164	160	286	150	136	12	
Inyo	19	12	7	19	12	7		
Kern	61	323	318	612	318	299	2	
Kings	300	151	149	284	131	133	1	
Lake	71	33	38	70	33	37		1
Lassen	85	48	37	85	48	37		
Los Angeles	12,378	6,418	5,960	11,398	5,894	5,504	231	4
Madera	184	93	91	182	91	91	1	1
Marin	213	125	118	235	122	113		
Mariposa	21	13	8	18	11	7		1
Mendocino	287	151	136	267	140	127		9
Merced	307	166	141	299	162	137		
Modoc	86	45	41	85	45	40		1
Mono	9	4	5	9	4	5		
Monterey	312	167	145	235	128	107	1	
Napa	183	96	87	181	95	86		
Nevada	156	78	78	153	76	77		
Orange	692	366	306	623	343	280	1	
Placer	307	170	137	211	133	108	1	
Plumas	46	22	24	45	21	24		
Riverside	622	321	301	586	298	288	14	2
Sacramento	1,696	890	786	1,318	678	640	9	1
San Benito	124	69	55	93	51	42		
San Bernardino	1,093	555	538	1,062	541	521	2	
San Diego	1,557	814	713	1,508	785	723	17	4
San Francisco	7,646	3,956	3,690	7,189	3,720	3,469	20	1
San Joaquin	936	460	476	811	396	415	1	
San Luis Obispo	291	148	113	278	141	137		
San Mateo	507	276	231	493	266	227	2	
Santa Barbara	476	235	211	424	205	219		
Santa Clara	1,463	724	739	1,322	646	676	1	
Santa Cruz	481	247	231	349	181	168		
Shasta	251	125	126	249	124	125		1
Sierra	42	25	17	42	25	17		
Siskiyou	327	174	153	319	173	146		8
Solano	402	212	190	361	190	171	1	
Sonoma	692	371	321	661	348	313		2
Stanislaus	603	326	277	591	319	272	3	
Sutter	87	42	45	82	42	40		
Tehama	160	85	75	153	83	72	1	1
Trinity	29	14	15	29	14	15		
Tulare	689	377	312	645	346	299	1	
Tuolumne	33	19	14	33	19	14		
Ventura	332	182	150	306	171	135		
Yolo	213	118	125	197	91	106	3	
Yuba	130	72	58	113	63	50	1	

* Figures shown for each county are for county exclusive of freeholders' charter city or cities.

by Sex and Nativity of Mothers, for Counties: 1914.

Chinese	Japanese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
418	2,874	13,007	6,710	6,387	16,028	8,504	8,124	12,566	6,577	5,979
61	270	1,703	908	800	1,224	612	612	1,154	597	557
		3	2	1				1	1	
		59	31	28	14	10	4	49	24	25
1	18	186	100	86	211	102	109	56	29	27
		53	29	24	12	6	6	9	4	5
2	5	76	35	41	34	18	16	7	6	1
2	20	196	90	106	129	67	62	224	107	117
		15	9	6	16	3	13	8	5	3
	2	55	29	26	29	13	16	8	7	1
16	219	859	474	385	690	325	365	500	253	247
	2	56	33	23	42	19	23	20	12	8
		226	123	103	109	54	55	162	91	71
1	23	35	17	18	208	104	104	43	29	14
		6	3	3	11	9	2	2		2
11	16	136	61	75	350	181	169	126	71	55
5	30	89	43	46	113	55	58	62	33	29
		47	23	24	20	8	12	3	2	1
		37	16	21	36	24	12	12	8	4
28	717	1,693	885	908	6,501	3,350	3,151	3,204	1,659	1,545
		47	27	20	67	30	37	68	34	34
2	6	87	41	46	44	23	21	104	58	46
1	1	12	9	3	6	2	4			
4	7	135	69	66	55	30	25	77	41	36
1	7	109	60	49	84	45	39	106	57	49
		44	23	21	36	18	18	5	4	1
		4	1	3	1	1		4	2	2
3	73	139	77	62	42	23	19	54	28	26
1	1	87	44	43	50	27	23	44	24	20
3		84	48	36	24	11	13	45	17	28
	68	133	68	65	372	202	170	118	73	45
3	62	109	58	51	79	45	34	53	30	23
1		26	14	12	10	4	6	9	3	6
1	19	99	50	49	361	177	184	126	71	55
24	314	569	290	279	424	212	212	325	186	139
4	27	53	23	30	11	8	3	29	20	9
	29	196	102	91	580	293	287	226	146	140
3	25	249	136	113	909	469	440	350	180	170
196	240	2,722	1,390	1,332	1,328	695	633	3,139	1,635	1,504
14	110	394	199	205	274	138	136	143	69	74
1	12	189	67	72	82	40	42	57	34	23
1	11	153	86	67	81	36	45	219	144	115
1	51	176	82	94	131	61	70	117	62	56
5	135	583	263	270	331	165	166	458	218	240
6	126	147	77	70	100	51	49	102	53	49
	1	150	75	75	54	26	28	45	23	22
		29	15	14	6	5	1	7	5	2
		134	71	63	100	52	48	85	50	35
3	34	173	86	87	92	54	38	99	50	49
1	28	307	165	142	167	77	90	187	106	81
	9	165	88	77	285	154	131	141	77	61
1	4	42	26	16	26	12	14	14	4	10
	3	69	38	31	72	39	33	14	6	8
		23	12	11	3	1	2	3	1	2
6	37	173	88	85	367	205	162	105	53	52
		18	11	7	5	3	2	10	5	5
5	21	97	59	38	126	61	65	83	51	32
	43	110	46	64	63	31	32	24	14	10
	16	71	40	31	31	18	13	11	5	6

TABLE 12.—Births Classified by Sex and Race, and

City	Total live births	Male	Female	White			Negro	Indian
				Total	Male	Female		
31 freeholders' charter cities	22,569	14,382	13,977	26,468	13,483	12,925	320	11
*Alameda County	354	207	267	329	176	153	5	
Alameda	443	227	216	389	197	192	4	
Berkeley	706	405	301	709	373	336	2	
Oakland	3,117	1,566	1,511	2,787	1,392	1,395	36	1
Contra Costa County	379	214	165	357	205	152		
Richmond	326	166	160	318	163	155	1	
Fresno County	1,276	686	588	1,078	562	486	5	
Fresno	777	399	377	650	345	305	4	
Humboldt County	211	106	105	210	101	106		1
Eureka	237	115	122	226	115	121		1
Kern County	513	276	237	489	264	225	4	
Bakersfield	172	85	87	167	83	84	1	
Los Angeles County	2,766	1,390	1,356	2,302	1,151	1,151	16	
Alhambra	44	21	20	44	24	20		
Long Beach	446	235	210	415	218	197		
Los Angeles	7,867	3,976	3,951	7,196	3,630	3,566	177	4
Pasadena	602	316	284	568	299	269	22	
Pomona	211	103	98	197	101	96	2	
Santa Monica	210	113	97	198	106	92	8	
Marin County	161	82	82	159	80	79		
San Rafael	107	52	55	107	52	55		
Monterey County	204	104	100	156	83	73		
Monterey	86	44	54	81	37	44		
Salinas	58	26	30	55	25	30		
Napa County	88	41	44	88	44	44		
Napa	119	63	56	118	62	56		
Nevada County	113	58	55	113	58	55		
Grass Valley	74	40	34	73	40	33		
Riverside County	337	172	165	331	168	163	1	3
Riverside	274	128	146	238	108	130	14	
Sacramento County	377	199	176	167	91	76		
Sacramento	1,233	611	642	1,097	536	559	3	3
San Bernardino County	841	423	418	810	406	404	5	3
San Bernardino	570	186	181	356	182	174	3	1
San Diego County	451	233	221	437	224	213	2	
San Diego	1,018	504	514	985	488	497	11	1
San Francisco (city and county)	7,024	3,944	3,680	7,147	3,691	3,456	18	
San Joaquin County	477	229	248	364	171	193	1	
Stockton	354	200	261	490	257	233	5	
San Luis Obispo County	200	114	89	190	106	85	1	
San Luis Obispo	110	55	55	107	54	53		
Santa Barbara County	205	147	148	255	132	123	1	
Santa Barbara	200	105	130	209	154	115	3	
Santa Clara County	1,065	582	483	919	503	416	1	
Palo Alto	48	13	35	38	12	26		
San Jose	560	284	276	538	274	264	2	
Santa Cruz County	106	60	46	92	52	40		
Santa Cruz	151	69	82	148	66	82		
Watsonville	218	106	110	103	52	51		
Solano County	211	116	95	159	92	67	2	
Vallejo	189	106	81	180	105	75	4	
Sonoma County	150	218	202	417	228	189		1
Petaluma	117	62	55	115	61	54		
Santa Rosa	178	102	76	173	90	74		
Stanislaus County	412	219	213	482	241	241		
Modesto	124	80	44	124	80	44		

for each county are for county exclusive of freeholders' charter city or cities.

by Sex and Nativity of Mothers, for Cities: 1915.

Chinese	Japanese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
345	1,485	8,098	4,106	3,967	9,828	5,024	4,804	8,487	4,349	4,138
2	38	151	75	76	73	41	32	106	60	45
1	49	194	96	98	82	43	39	113	58	55
7	48	288	161	127	243	127	116	178	86	93
61	132	1,114	563	551	825	413	412	848	416	432
-----	22	110	66	44	55	30	25	192	100	83
-----	9	107	57	50	97	44	53	114	62	52
-----	193	219	111	108	498	273	225	361	208	153
8	45	172	96	76	268	128	140	210	121	89
-----	-----	91	45	46	46	22	24	73	37	36
-----	-----	106	56	50	52	23	29	78	36	42
9	11	113	60	53	268	155	133	88	49	39
2	2	38	16	22	82	41	41	47	26	21
2	426	400	199	201	1,307	652	655	505	300	205
-----	-----	5	1	4	28	17	11	11	6	5
-----	31	47	21	26	307	165	142	61	32	29
28	460	1,028	486	538	3,967	2,008	1,949	2,213	1,127	1,086
-----	12	67	37	30	382	208	174	119	54	65
-----	2	22	6	16	154	85	69	21	10	11
-----	4	39	18	21	107	62	45	42	26	16
1	4	63	28	35	29	15	14	67	37	30
-----	-----	51	24	27	15	9	6	41	19	22
2	46	84	44	40	26	16	10	46	23	23
1	16	37	18	19	16	6	10	28	13	15
2	1	35	17	18	10	5	5	10	3	7
-----	-----	55	32	23	14	6	8	19	6	13
-----	1	59	35	24	38	17	21	21	10	11
-----	-----	59	30	29	20	9	11	34	20	14
1	-----	41	19	22	19	11	8	13	10	3
-----	2	45	19	26	205	109	96	81	40	41
-----	22	50	21	29	131	57	74	57	30	27
15	193	72	41	31	47	24	23	48	26	22
8	142	480	237	243	334	159	175	283	142	141
-----	23	122	63	59	466	240	226	222	103	119
-----	10	82	44	38	185	99	86	89	39	50
-----	15	99	51	48	290	142	118	78	31	47
4	17	178	88	90	567	293	274	240	107	133
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
196	263	2,835	1,451	1,384	1,277	648	629	3,035	1,568	1,447
2	110	156	75	81	129	59	70	79	37	42
11	48	264	122	132	136	74	62	100	61	39
-----	12	104	56	48	39	20	19	47	29	18
1	2	73	39	34	17	6	11	17	9	8
-----	39	144	79	65	57	25	32	54	28	26
6	17	91	51	40	90	57	33	88	46	42
7	138	390	201	189	243	138	105	286	164	122
-----	10	10	3	7	18	4	14	10	5	5
1	19	192	103	89	118	56	62	228	115	113
-----	14	38	21	17	25	15	10	29	16	13
-----	3	71	30	41	49	22	27	28	14	14
5	110	47	23	24	22	11	11	34	18	16
4	46	78	39	39	31	22	9	60	31	19
1	4	87	47	40	60	37	23	33	21	12
-----	32	193	102	91	97	57	40	127	69	58
-----	2	67	36	31	24	12	12	24	13	11
1	4	77	45	32	55	37	18	41	17	24
-----	10	128	65	63	234	116	118	120	60	60
-----	-----	49	30	19	63	40	23	12	10	2

TABLE 12. Births Classified by Sex and Race, and

City	Total New Births	White					Negro	Indian
		Male	Female	Total				
					Male	Female		
32 freeholders' charter cities	28,884	14,749	12,854	28,854	12,784	12,980	328	12
*Alameda County	355	188	167	312	164	145	3	
Alameda	414	215	199	362	189	173	1	
Berkeley	813	413	400	746	361	384	5	
Oakland	2,987	1,488	1,451	2,722	1,378	1,344	37	1
Contra Costa County	289	142	147	273	132	141		
Richmond	284	135	149	276	132	144	2	
Fresno County	1,088	537	559	982	422	460	8	
Fresno	731	364	367	667	330	337	5	
Humboldt County	263	131	132	254	125	129	1	8
Eureka	245	145	100	243	143	100		2
Los Angeles County	2,655	1,367	1,288	2,329	1,186	1,143	17	
Long Beach	473	241	232	451	231	220	1	
Los Angeles	8,222	4,269	3,953	7,618	3,951	3,667	196	4
Pasadena	636	333	302	619	324	295	9	
Pomona	200	108	97	197	102	95	1	
Santa Monica	193	105	88	184	100	84	7	
Marin County	142	72	70	137	71	66		
San Rafael	101	53	48	98	51	47		
Monterey County	210	108	102	140	72	68		
Monterey	55	33	22	50	31	19	1	
Salinas	47	26	21	45	25	20		
Napa County	72	33	39	71	32	39		
Napa	111	63	48	110	63	47		
Nevada County	113	57	56	111	55	56		
Grass Valley	43	21	22	42	21	21		
Riverside County	323	166	157	318	164	154		2
Riverside	290	155	144	298	134	134	14	
Sacramento County	376	223	153	164	97	67	2	
Sacramento	1,290	667	623	1,154	581	573	7	1
San Bernardino County	752	377	375	733	370	363	1	
San Bernardino	341	178	163	329	171	158	1	
San Diego County	456	231	225	445	224	221	1	2
San Diego	1,101	583	518	1,063	561	502	16	2
San Francisco (city and county)	7,646	3,956	3,690	7,189	3,720	3,469	20	1
San Joaquin County	533	257	276	444	215	229		
Stockton	408	208	200	367	181	186	1	
San Luis Obispo County	171	97	74	159	90	69		
San Luis Obispo	120	51	69	119	51	68		
Santa Barbara County	270	144	126	231	120	111		
Santa Barbara	206	91	115	196	85	108		
Santa Clara County	822	411	411	692	338	354		
Palo Alto	66	39	27	62	33	24		
San Jose	575	274	301	566	270	296	1	
Santa Cruz County	111	59	52	93	52	41		
Santa Cruz	160	80	80	158	78	80		
Watsonville	210	108	102	98	51	47		
Solano County	202	101	101	170	83	87		
Vallejo	200	111	89	194	107	87	1	
Sonoma County	358	195	163	332	175	157		1
Petaluma	147	77	70	147	77	70		
Santa Rosa	187	99	88	182	96	86		1
Stanislaus County	464	253	211	457	248	209	1	
Modesto	139	73	66	134	71	68	2	

*Figures shown for each county are for county exclusive of freeholders' charter city or cities.

by Sex and Nativity of Mothers, for Cities: 1914.

Chinese	Japa- nese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
338	1,262	7,024	4,068	2,966	10,185	5,211	4,974	8,545	4,455	4,000
-----	40	155	79	76	72	39	33	85	46	39
-----	51	174	84	90	99	58	41	89	47	42
2	61	299	154	145	269	129	140	177	98	79
59	118	1,135	586	549	784	386	398	803	406	397
1	15	103	47	56	51	26	25	119	59	60
1	5	93	43	50	78	41	37	105	48	57
2	204	185	80	105	404	200	204	293	142	151
14	45	174	94	80	286	125	161	207	111	96
-----	-----	123	62	61	51	26	25	80	37	43
-----	-----	103	61	42	58	28	30	82	54	28
-----	309	379	196	184	1,520	674	646	630	317	313
-----	21	60	27	33	334	171	163	57	33	24
28	376	1,134	606	528	4,135	2,122	2,013	2,349	1,223	1,126
-----	7	58	29	29	450	235	215	111	60	51
-----	2	36	18	18	146	78	68	15	6	9
-----	2	26	10	16	116	70	46	42	20	22
1	4	51	21	30	26	11	15	57	36	21
1	2	33	17	16	18	12	6	47	22	25
-----	70	84	44	40	23	12	11	33	16	17
1	3	25	15	10	14	8	6	11	8	3
2	-----	30	18	12	5	3	2	10	4	6
-----	1	37	14	23	13	7	6	21	11	10
1	-----	50	30	20	37	20	17	23	13	10
2	-----	56	32	24	18	9	9	37	14	23
1	-----	28	16	12	6	2	4	8	3	5
-----	3	65	35	30	199	103	96	54	26	28
1	16	34	15	19	162	74	88	72	45	27
14	196	85	43	37	47	23	19	32	21	11
10	118	484	232	252	377	184	193	293	165	128
-----	18	121	71	53	399	195	204	210	101	106
-----	11	72	31	41	181	98	83	76	42	34
1	7	87	49	38	259	116	143	99	59	40
2	18	162	87	75	650	353	297	251	121	130
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
196	240	2,722	1,300	1,332	1,328	695	633	3,139	1,635	1,504
7	82	194	88	106	162	78	84	88	49	39
7	28	200	101	99	112	60	52	55	20	35
-----	12	74	38	36	45	27	18	40	25	15
1	-----	65	29	36	37	13	24	17	9	8
1	36	95	48	47	66	33	33	70	39	31
-----	13	81	34	47	65	28	37	47	23	24
2	123	295	147	148	183	92	91	214	90	115
1	3	26	16	10	22	19	3	14	3	11
2	4	212	100	112	126	54	72	230	116	114
-----	18	35	21	14	21	11	10	37	20	17
-----	2	68	31	37	56	30	26	31	17	17
6	106	44	25	19	23	10	13	31	16	15
2	30	79	35	44	39	21	18	52	27	25
1	4	94	51	43	53	33	20	47	23	24
-----	25	145	79	66	81	44	37	106	52	54
-----	-----	80	43	37	30	11	19	37	23	14
1	3	82	43	39	56	22	34	44	31	13
-----	6	125	66	59	213	115	98	119	67	52
-----	3	40	22	18	72	39	33	22	10	12

TABLE 14. Births Classified by Sex, Race, and Nativity of Mothers, with Per Cents by Sex, for Geographic Divisions: 1915 and 1914.

Geographic division, and race or nativity of mother	Births						Per cent male		Per cent female		
	Total		Male		Female		1915	1914	1915	1914	
	1915	1914	1915	1914	1915	1914					
The State	48,075	46,012	24,772	23,792	23,308	22,220	51.5	51.7	48.5	48.3	
White	43,874	42,281	22,588	21,791	21,291	20,490	51.5	51.5	48.5	48.5	
Born in California..	13,941	13,097	7,144	6,710	6,797	6,387	51.2	51.2	48.8	48.8	
Born in other states..	16,914	16,088	8,712	8,504	8,202	8,124	51.5	51.1	48.5	48.9	
Foreign born	13,019	12,556	6,723	6,577	6,296	5,979	51.6	52.4	48.4	47.6	
Non-Caucasian	4,201	3,731	2,189	2,001	2,012	1,730	52.1	53.6	47.9	46.4	
Northern California	4,562	4,208	2,374	2,213	2,188	1,990	52.0	52.7	48.0	47.3	
White	4,328	4,001	2,250	2,102	2,078	1,899	52.0	52.5	48.0	47.5	
Born in California..	2,135	1,963	1,133	1,087	1,002	916	52.1	53.1	46.9	46.9	
Born in other states..	1,244	1,181	651	598	593	568	52.3	50.2	47.7	48.5	
Foreign born	949	867	466	472	483	395	49.1	54.4	50.9	45.6	
Non-Caucasian	234	202	124	111	110	91	53.0	55.0	47.0	45.0	
Coast counties	1,923	1,809	1,010	958	913	851	52.5	53.0	47.5	47.0	
White	1,871	1,744	979	915	892	829	52.3	52.5	47.7	47.5	
Born in California..	930	840	506	445	425	395	54.4	53.0	45.7	47.0	
Born in other states..	441	420	235	200	206	220	53.3	47.6	46.7	52.4	
Foreign born	500	484	239	270	261	214	47.8	55.8	52.3	44.2	
Non-Caucasian	52	65	31	43	21	22	50.6	66.2	40.4	33.8	
Interior counties..	2,639	2,394	1,364	1,255	1,275	1,139	51.7	52.4	48.3	47.6	
White	2,457	2,257	1,271	1,187	1,186	1,070	51.7	52.6	48.3	47.4	
Born in California..	1,205	1,113	628	592	577	521	52.1	53.2	47.9	46.8	
Born in other states..	803	761	416	398	387	368	51.8	51.6	48.2	48.4	
Foreign born	449	383	237	202	222	181	50.6	52.7	49.4	47.3	
Non-Caucasian	182	137	93	68	89	69	51.1	49.6	48.9	50.4	
Central California	25,499	24,335	13,186	12,504	12,313	11,831	51.7	51.4	48.3	48.6	
White	23,092	22,067	11,939	11,302	11,153	10,785	51.7	51.2	48.3	48.8	
Born in California..	8,989	8,466	4,585	4,274	4,404	4,192	51.0	50.5	49.0	49.5	
Born in other states..	6,415	6,259	3,296	3,194	3,122	3,065	51.3	51.0	46.7	49.9	
Foreign born	7,688	7,362	4,057	3,834	3,681	3,588	52.8	52.1	47.2	47.9	
Non-Caucasian	2,407	2,248	1,247	1,202	1,160	1,046	51.8	53.5	48.2	46.5	
San Francisco	7,624	7,646	3,944	3,956	3,690	3,690	51.7	51.7	48.3	48.3	
White	7,147	7,189	3,691	3,720	3,456	3,469	51.6	51.7	48.4	48.3	
Born in California..	2,835	2,722	1,451	1,390	1,384	1,332	51.2	51.1	48.8	48.9	
Born in other states..	1,277	1,228	648	606	629	633	50.7	52.3	49.3	47.7	
Foreign born	3,085	3,139	1,588	1,635	1,447	1,504	52.3	52.1	47.7	47.9	
Non-Caucasian	477	457	253	236	224	221	53.0	51.6	47.0	48.4	
Other bay counties..	6,075	5,842	3,119	2,980	2,966	2,892	51.3	51.0	48.7	49.0	
White	5,635	5,418	2,887	2,764	2,748	2,654	51.2	51.0	48.8	49.0	
Born in California..	2,249	2,199	1,160	1,120	1,089	1,079	51.6	50.9	48.4	49.1	
Born in other states..	1,503	1,478	762	738	741	740	50.7	49.9	49.2	50.1	
Foreign born	1,883	1,741	965	908	918	835	51.2	52.0	48.8	48.0	
Non-Caucasian	440	424	232	216	208	208	52.7	50.9	47.3	49.1	
Coast counties	3,034	2,671	1,592	1,355	1,472	1,316	51.5	50.7	48.5	49.3	
White	2,591	2,277	1,341	1,147	1,250	1,130	51.8	50.4	48.2	49.6	
Born in California..	1,192	1,011	606	507	586	504	50.8	50.1	49.2	49.9	
Born in other states..	636	566	310	287	295	279	51.2	50.7	48.8	49.3	
Foreign born	794	700	425	353	399	347	58.5	50.4	46.5	49.6	
Non-Caucasian	443	394	221	208	222	186	49.9	52.8	50.1	47.2	
Interior counties..	8,766	8,176	4,561	4,213	4,205	3,963	52.0	51.5	48.0	48.5	
White	7,719	7,203	4,020	3,671	3,699	3,532	52.1	51.0	47.9	48.9	
Born in California..	2,713	2,534	1,368	1,257	1,345	1,277	50.4	49.6	49.6	50.4	
Born in other states..	3,030	2,887	1,573	1,474	1,457	1,413	51.9	51.1	48.1	48.9	
Foreign born	1,976	1,782	1,079	940	897	842	54.6	52.7	45.4	47.3	
Non-Caucasian	1,047	973	541	542	506	431	51.7	55.7	48.3	44.2	
Southern California	18,014	17,474	9,212	9,075	8,802	8,399	51.1	51.9	48.9	48.1	
White	16,454	16,193	8,394	8,387	8,000	7,806	51.0	51.8	49.0	48.2	
Born in California..	2,817	2,678	1,426	1,399	1,391	1,279	50.6	52.2	49.4	47.8	
Born in other states..	9,255	9,188	4,768	4,717	4,487	4,471	51.5	51.3	48.5	48.7	
Foreign born	4,382	4,327	2,200	2,271	2,182	2,066	50.2	52.5	49.8	47.5	
Non-Caucasian	1,560	1,281	818	698	742	598	52.4	53.7	47.6	46.3	
Los Angeles	12,106	12,378	6,160	6,418	5,946	5,990	50.9	51.9	49.1	48.1	
White	10,912	11,398	5,529	5,894	5,383	5,504	50.7	51.7	49.3	48.3	
Born in California..	1,908	1,606	777	885	831	808	48.3	52.3	51.7	47.7	
Born in other states..	6,242	6,501	3,197	3,250	3,045	3,151	51.2	51.5	48.8	48.5	
Foreign born	3,062	3,204	1,555	1,659	1,507	1,545	50.8	51.8	49.2	48.3	
Non-Caucasian	1,194	980	681	594	568	498	53.5	53.5	48.0	48.0	

TABLE 14.—Births Classified by Sex, Race, and Nativity of Mothers, with Per cents by Sex, for Geographic Divisions: 1915 and 1914—Concluded.

Geographic division, and race or nativity of mother	Births						Per cent male		Per cent female		
	Total		Male		Female		1915	1914	1915	1914	
	1915	1914	1915	1914	1915	1914					
Other counties	5,908	5,096	3,062	2,657	2,856	2,439	51.7	52.1	48.3	47.9	
White	5,542	4,795	2,865	2,493	2,677	2,302	51.7	52.0	48.3	48.0	
Born in California.....	1,209	985	649	514	560	471	53.7	52.2	46.3	47.8	
Born in other states.....	3,013	2,687	1,571	1,367	1,442	1,320	52.1	50.9	47.9	49.1	
Foreign born	1,320	1,123	645	612	675	511	48.9	54.5	51.1	45.5	
Non-Caucasian	266	301	187	161	179	137	51.1	54.5	48.9	45.5	
Northern and Central											
California	30,061	28,538	15,500	14,717	14,501	13,821	51.8	51.6	48.2	48.4	
White	27,420	26,088	14,189	13,404	13,231	12,664	51.8	51.4	48.3	48.6	
Born in California.....	11,124	10,419	5,718	5,311	5,406	5,108	51.4	51.0	48.6	49.0	
Born in other states.....	7,659	7,440	3,944	3,787	3,715	3,653	51.5	50.9	48.5	49.1	
Foreign born	8,637	8,229	4,523	4,306	4,114	3,923	52.4	52.3	47.6	47.7	
Non-Caucasian	2,641	2,450	1,371	1,313	1,270	1,137	51.9	53.6	48.1	46.4	
Coast counties	18,656	17,968	9,635	9,249	9,021	8,719	51.6	51.5	48.4	48.5	
White	17,244	16,628	8,898	8,546	8,346	8,062	51.6	51.4	48.4	48.6	
Born in California.....	7,306	6,772	3,722	3,462	3,484	3,310	51.7	51.1	48.3	48.9	
Born in other states.....	3,826	3,792	1,955	1,920	1,871	1,872	51.1	50.6	48.9	49.4	
Foreign born	6,212	6,064	3,217	3,164	2,995	2,900	51.8	52.2	48.2	47.8	
Non-Caucasian	1,412	1,340	737	708	675	637	52.2	52.5	47.8	47.5	
Interior counties.....	11,406	10,570	5,925	5,468	5,480	5,102	52.0	51.7	48.0	48.3	
White	10,176	9,460	5,291	4,858	4,885	4,602	52.0	51.4	48.0	48.6	
Born in California.....	3,918	3,647	1,996	1,849	1,922	1,768	50.9	50.7	49.1	49.3	
Born in other states.....	3,833	3,648	1,989	1,867	1,844	1,781	51.9	51.2	48.1	48.8	
Foreign born	2,425	2,165	1,306	1,142	1,119	1,023	53.9	52.7	46.1	47.3	
Non-Caucasian	1,229	1,110	634	610	566	500	51.6	55.0	48.4	45.0	
Metropolitan area.....	13,696	13,488	7,063	6,986	6,636	6,562	51.6	51.4	48.4	48.6	
White	12,782	12,607	6,578	6,484	6,204	6,123	51.5	51.4	48.5	48.6	
Born in California.....	5,081	4,921	2,611	2,510	2,473	2,411	51.4	51.0	48.6	49.0	
Born in other states.....	2,780	2,806	1,410	1,433	1,370	1,373	50.7	51.1	49.3	48.9	
Foreign born	4,918	4,880	2,553	2,541	2,365	2,339	51.9	52.1	48.1	47.9	
Non-Caucasian	917	881	485	452	432	429	52.9	51.3	47.1	48.7	
Rural counties	16,362	15,060	8,497	7,781	7,865	7,269	51.9	51.7	48.1	48.3	
White	14,638	13,481	7,611	6,920	7,027	6,561	52.0	51.3	48.0	48.7	
Born in California.....	6,040	5,498	3,107	2,801	2,633	2,697	51.4	50.9	48.6	49.1	
Born in other states.....	4,879	4,634	2,534	2,354	2,315	2,280	51.9	50.8	48.1	49.2	
Foreign born	3,719	3,349	1,970	1,765	1,749	1,584	53.0	52.7	47.0	47.3	
Non-Caucasian	1,724	1,569	886	861	838	708	51.4	54.9	48.6	45.1	

TABLE 15.—Births Classified by Sex, Race and Nativity of Mothers, with Per cents by Sex, for Cities and Rest of State: 1915 and 1914.

Population group, and race or nativity of mother	Births						Per cent male		Per cent female		
	Total		Male		Female		1915	1914	1915	1914	
	1915	1914	1915	1914	1915	1914					
California	48,075	46,012	24,772	23,792	23,303	22,220	51.5	51.7	48.5	48.3	
White	43,874	42,281	22,583	21,791	21,291	20,490	51.5	51.5	48.5	48.5	
Born in California.....	13,941	13,697	7,144	6,710	6,797	6,387	51.2	51.2	48.8	48.8	
Born in other states.....	16,914	16,628	8,712	8,504	8,262	8,124	51.5	51.1	48.5	48.9	
Foreign born	13,019	12,556	6,723	6,577	6,206	5,979	51.6	52.4	48.4	47.6	
Non-Caucasian	4,201	3,731	2,180	2,001	2,012	1,730	52.1	53.6	47.9	46.4	
Freeholders' charter cities	28,569	28,594	14,592	14,740	13,977	13,854	51.1	51.5	48.9	48.5	
White	26,108	26,654	13,483	13,724	12,925	12,930	51.1	51.5	48.9	48.5	
Born in California.....	8,993	7,721	4,106	4,078	3,987	3,866	50.7	51.2	49.3	48.8	
Born in other states.....	9,828	10,185	5,024	5,211	4,804	4,974	51.1	51.2	48.9	48.8	
Foreign born	8,487	8,545	4,349	4,455	4,138	4,090	51.2	52.1	48.8	47.9	
Non-Caucasian	2,161	1,940	1,109	1,016	1,052	924	51.3	52.4	48.7	47.6	
Rest of state	19,506	17,418	10,180	9,052	9,326	8,366	52.2	52.0	47.8	48.0	
White	17,166	15,627	9,100	8,067	8,366	7,560	52.1	51.6	47.9	48.4	
Born in California.....	5,848	5,173	3,038	2,652	2,810	2,521	51.9	51.3	48.1	48.7	
Born in other states.....	7,086	6,443	3,688	3,293	3,398	3,150	52.0	51.1	48.0	48.9	
Foreign born	4,532	4,011	2,374	2,122	2,158	1,889	52.4	52.9	47.6	47.1	
Non-Caucasian	2,040	1,791	1,080	986	960	806	52.9	55.0	47.1	45.0	

TABLE 16.—Births Classified by Number of Children Born to Mother, for Counties: 1915.

County	Number of children born to mother, including birth reported											Total live births: 1915
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten or more	Unknown	
California	48,075	17,900	11,718	6,741	4,153	2,510	1,533	1,015	642	414	621	1,368
Alameda	4,000	1,780	1,221	672	370	185	94	78	49	34	46	71
Alpine	4	1	1	1	1	1	1	1	1	1	1	1
Amador	139	34	27	15	12	5	2	2	1	1	4	1
Butte	513	123	76	48	43	23	23	16	5	1	12	8
Calaveras	71	22	14	9	10	5	5	1	1	1	1	1
Colusa	140	36	16	15	11	11	2	7	3	1	2	4
Contra Costa	707	203	116	72	42	34	15	15	19	3	9	11
Del Norte	53	21	6	3	3	3	3	4	1	1	1	1
El Dorado	102	30	17	13	7	5	5	2	3	1	1	1
Fresno	1,583	458	277	181	123	78	78	40	46	14	42	39
Glenn	106	23	16	11	8	2	2	4	3	1	2	8
Humboldt	448	154	87	48	27	13	12	9	9	3	4	13
Imperial	421	132	63	46	27	21	21	7	6	4	11	8
Inyo	18	2	4	1	1	1	1	1	1	1	1	1
Kern	685	213	83	60	42	25	25	14	13	7	13	27
Kings	350	118	55	37	19	13	13	7	5	2	3	9
Lake	82	26	11	9	8	3	3	4	2	1	3	3
Lassen	110	30	16	8	7	2	2	1	3	1	1	2
Los Angeles	12,106	4,577	1,584	950	554	328	328	216	150	92	155	513
Madera	197	65	43	30	22	10	10	6	5	2	6	8
Marin	271	91	76	40	21	11	13	3	2	2	3	6
Mariposa	31	6	10	8	1	3	3	3	3	4	4	14
Mendocino	357	111	86	54	38	22	10	11	3	4	4	18
Merced	391	116	76	71	38	27	22	9	5	4	5	13
Modoc	110	36	25	17	9	9	6	4	1	1	1	8
Mono	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	360	113	45	32	13	20	20	10	4	8	7	22
Napa	207	81	44	15	12	6	6	4	3	2	2	5
Nevada	187	53	27	16	10	9	9	3	4	1	1	1
Orange	1,186	389	168	108	84	56	56	28	10	11	23	23

TABLE 17.—Births Classified by Number of Children Born to Mother, for Cities: 1916.

City	Number of children born to mother, including birth reported										Total live births 1916	
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten or more		Unknown
34 freeholders' char- ter cities	5,536	11,275	7,139	3,774	2,221	1,218	754	530	312	206	293	855
*Alameda County	571	122	91	82	46	26	15	10	2	4	7	4
Alameda	443	175	111	67	45	11	7	4	3	4	5	8
Berkeley	78	36	50	100	63	30	15	16	12	5	7	
Oakland	1,117	1,174	516	443	222	118	57	48	32	21	27	59
Contra Costa County	1,771	16	95	62	38	25	25	8	11	2	7	11
Richmond	129	38	98	34	24	17	9	7	8	1	2	
Fresno County	1,276	361	294	180	123	86	53	29	36	10	29	33
Fresno	737	294	164	97	46	35	25	11	10	4	13	6
Humboldt County	211	56	51	29	27	15	8	5	4	2	3	9
Eureka	201	96	61	28	21	12	4	4	5	1	1	4
Kern County	111	117	139	66	43	34	18	13	8	5	7	22
Bakersfield	172	76	49	17	17	8	7	1	5	2	6	4
Los Angeles County	2,766	547	689	412	256	178	96	61	55	37	54	78
Alhambra	44	8	10	9	7	3	1	1			2	3
Long Beach	44	174	120	61	36	13	12	5	7	4	5	9
Los Angeles	1,797	3,184	1,927	958	547	325	186	123	82	45	84	407
Pasadena	622	26	177	87	63	17	21	12	3	5	6	6
Pomona	261	17	38	31	24	9	7	3		1	1	10
Santa Monica	290	72	46	26	17	9	6	6	3		3	2
Marin County	164	33	46	22	14	7	9	3		1	3	4
San Rafael	107	36	30	18	10	4	4		2	1		2
Monterey County	24	65	41	29	15	8	11	7	3		5	20
Monterey	98	24	31	11	13	5	6	3	1	2	1	1
Salinas	56	24	19	5	4		3			1	1	1
Napa County	88	31	19	14	5	5	1	3	1	2	1	3
Napa	112	47	25	19	10	7	5	1	2		1	2
Nevada County	111	39	35	14	13	9	4	4	2	2		
Grass Valley	71	24	18	13	8	1	5	5	1	2	1	1
Riverside County	337	163	51	32	33	18	13	13	9	4	3	8
Riverside	274	87	67	42	25	16	11	9	8		4	5
Sacramento County	375	121	86	57	36	18	14	5	7	3	3	25
Sacramento	1,330	499	341	157	100	46	41	21	13	8	6	30
San Bernardino County	841	269	175	123	82	66	36	29	14	16	20	11
San Bernardino	879	131	90	56	30	21	11	12	7	5	8	2
San Diego County	454	137	112	76	51	37	26	13	6	10	4	2
San Diego	1,618	417	271	133	64	45	29	17	7	5	4	26
San Francisco (city and county)	7,724	3,098	1,826	969	600	318	207	146	70	63	79	218
San Joaquin County	477	150	129	71	41	31	10	12	6	7	7	22
Stockton	354	235	140	73	34	18	11	14	6	1	4	16
San Luis Obispo County	26	13	48	43	24	12	6	5	4	5	3	
San Luis Obispo	110	34	23	29	8	9	6	3	1	1	5	
Santa Barbara County	295	90	63	56	41	17	6	6	6	4	3	3
Santa Barbara	265	121	51	44	25	13	9	5	3	2	3	19
Santa Clara County	1,065	375	256	172	87	62	43	25	22	11	13	14
Palo Alto	48	19	7	9	2	5	2	1	1	1	1	
San Jose	560	193	121	74	58	36	20	22	11	11	6	5
Santa Cruz County	106	35	24	22	4	7	1	3	1	2	2	5
Santa Cruz	151	57	33	17	19	9	6	3	2	1	1	3
Watsonville	218	71	70	43	20	5	6				1	2
Solano County	211	68	47	33	23	7	15	9	1	1	2	5
Vallejo	189	72	56	29	13	5	5	3	1	2	3	1
Sonoma County	50	128	102	68	57	31	14	20	9	8	8	5
Petaluma	117	46	38	18	7	1	4	1	2			
Santa Rosa	178	66	35	25	18	13	2	8	4	4	3	
Stanislaus County	492	158	107	70	51	42	24	10	11	8	7	4
Modesto	124	54	27	12	14	4	5	3		2	2	1

*Figures

each county are for county exclusive of freeholders' charter city or cities.

III. STATISTICS OF DEATHS: 1915 AND 1914.

SYNOPSIS.

Causes of Death.—Diseases of the circulatory system (heart disease, etc.) constitute the principal group of causes of death in California, the per cent of total deaths for this group being 18.6 in 1915 and 17.0 in 1914 against the annual average of 15.9 for 1906 to 1915, and the death rates per 100,000 population being 254.0 and 231.5 as compared with the annual average of 221.2 for the ten-year period. The death rate for heart disease, etc., increased greatly through the ten years from only 185.1 for 1906 to 254.0 for 1915.

Tuberculosis, however, is the leading single cause of death in this state, causing about one-seventh of all deaths (14.2 per cent for both 1915 and 1914 against the average of 14.6 for 1906 to 1915). The tuberculosis death rate per 100,000 population was 194.5 in 1915 and 192.5 in 1914 against 204.0 for the last ten years. In contrast with the greatly increasing death rate for heart disease, etc., the death rate for tuberculosis decreased appreciably between 1906 and 1915 from 218.0 to 194.5.

Next after heart disease, etc., and tuberculosis come diseases of the respiratory system (pneumonia, etc.), diseases of the nervous system (meningitis, apoplexy, etc.), diseases of the digestive system (diarrhea, etc.), miscellaneous violence (besides suicide), cancer, Bright's disease and nephritis, and also epidemic diseases.

The death rates decreased generally between 1906 and 1915, though varying somewhat in the period, for diseases of the respiratory, nervous and digestive systems.

While death rates for miscellaneous violence remained nearly the same through the ten years, the death rates for suicide increased much since 1906, the former high rate for 1908 being surpassed greatly by that for 1915.

There were marked increases between 1906 and 1915 in the death rates for both cancer and Bright's disease, but on the other hand there were notable decreases during the decade in the death rates for various epidemic diseases.

Typhoid fever shows the most notable reduction in mortality. The deaths were successively as follows: 657 (1906), 558, 540, 461, 477, 444, 454, 436, 376, and 276 (1915). Similarly, the death rates decreased continuously between 1906 and 1915 thus: 32.3, 26.3, 24.4, 20.0, 19.9, 17.8, 17.6, 16.3, 13.6 and 9.7.

The steadily decreasing mortality from typhoid fever made diphtheria the leading epidemic disease in 1915, when deaths from diphtheria were exceptionally numerous.

Other notable epidemic diseases present in 1915 and 1914 were: Whooping cough, measles, influenza, malarial fever, and scarlet fever. Smallpox caused three deaths in 1915 against one in 1914, while plague caused a single death in 1915 but none the year before.

Geographic Divisions.—Analysis of causes of death in different localities reveals marked contrasts between the several geographic divisions in the relative prevalence of various diseases.

In the coast counties of both northern and central California, as well as in southern California outside Los Angeles, relatively high proportions of all deaths are due to diseases of the nervous system, the explanation being the presence of state hospitals in these three geographic divisions.

The interior counties of northern California show high proportions for miscellaneous deaths from violence, as drowning, railroad injuries, other accidents, etc.

In the interior counties of both northern and central California, and also in the counties south of Tehachapi other than Los Angeles, the proportions are relatively high for typhoid fever.

Each year large proportions of all deaths in San Francisco and the other bay counties were from heart disease, etc., as well as from pneumonia, while the metropolis leads especially also in the proportion of suicides among all decedents.

The proportion of deaths from tuberculosis was very high, indeed, each year in Los Angeles, as well as in the other counties of southern California, because of the heavy mortality among recent arrivals from eastern states.

Contrast between mortality in the metropolitan area and in the rural counties north of Tehachapi shows that the urban territory excels in deaths from heart disease, Bright's disease, cancer, pneumonia, digestive ailments (except diarrhea), and suicide, as well as from diphtheria and croup, while the country districts excel in deaths from diseases of the nervous system, infantile diarrhea, accidental violence and "old age," as well as typhoid fever, malarial fever, and scarlet fever.

Much the same contrast appears between mortality in chartered cities as a class and in all the rest of the state as a whole, the deaths from diarrhea and enteritis (under 2 years) being notably less within cities than outside them.

Analysis of mortality by months in the past five years indicates that the daily average number of deaths decreases generally from January to August while increasing regularly from September to December.

Tuberculosis.—The "great white plague" caused 5,551 deaths in 1915 and 5,320 in 1914, the per cent being 14.2 each year against the average of 14.6 for 1906 to 1915. The average per cent of total deaths from tuberculosis in the ten years last past was no less than 18.8 for southern California against only 12.6 for northern and central California together.

Among cities, the annual average per cent of tuberculosis deaths in the past five years was highest for San Bernardino, Bakersfield, Riverside, Los Angeles, Pasadena, Grass Valley, San Diego, and Stockton, all except Grass Valley, with many miners, and Stockton, with a state hospital, being in or near southern California. The per cent was relatively low for Palo Alto, Pomona, Santa Monica, Long Beach, Berkeley, Alhambra, Richmond, Santa Cruz, Petaluma, Santa Rosa, Vallejo, Alameda, Modesto, Napa, Salinas, and Oakland, all these cities except Pomona, Santa Monica, Long Beach, and Alhambra being north of Tehachapi.

Classification of deaths from tuberculosis by length of residence shows that north of Tehachapi many native Californians and old-time residents succumb to this disease. The annual average per cent of

native Californians among tuberculosis victims in 1906 to 1915 was 38.1 for northern and central California together against only 15.4 for southern California, being 28.7 for the entire state. Similarly, the average per cent who had lived here at least ten years was 29.9 for the territory north of Tehachapi as compared with only 20.5 for that to the south, being 26.0 for the state as a whole.

South of Tehachapi, on the other hand, deaths from tuberculosis occur largely among newly arrived consumptives. The annual average per cent of tuberculosis victims who had lived in the state less than ten years was as great as 55.5 for southern California against merely 18.4 for the territory north of Tehachapi and 33.8 for the whole state. Moreover, the length of residence in California was less than a year for an average of 17.0 per cent of the tuberculosis victims south of Tehachapi, the corresponding per cent for the entire state being only 9.2. In fact, of all who died of tuberculosis in southern California, an average of 2.0 per cent had been in the state less than a month, 6.4 per cent less than three months, and altogether 11.2 per cent less than half a year.

Among tuberculosis victims in cities, the average per cents for residents of less than ten years' standing in 1911 to 1915 were as follows: Pasadena, 64.4; San Diego, 58.9; Los Angeles, 55.7; Riverside, 55.0; and San Bernardino, 52.4. Moreover, the average per cents for residents of less than a single year's standing were thus: San Diego, 20.2; Pasadena, 18.1; San Bernardino, 15.3; Riverside, 15.2; and Los Angeles, 13.3.

Data for 1915 and 1914 on length of residence for all causes of death show that in southern California, where between one-fifth and one-sixth of all deaths are due to tuberculosis, the proportion for this disease is fully one-fourth among all decedents who had lived in the state less than a year and over one-fifth among those who had been here only one to nine years.

Figures for 1911 to 1915 indicate that the months of greatest mortality from tuberculosis for California as a whole are February, March, April and May, while deaths from this disease are relatively least numerous in August, September, October and November.

In short, the death rate of California is evidently swollen considerably by deaths occurring here from disease contracted elsewhere, for where tuberculosis is most prevalent a large proportion of the victims are residents of very short standing. Moreover, infection from these newly arrived consumptives accounts for some of the deaths among native Californians and old-time residents.

Sex.—Of 39,026 decedents in 1915, the males were 23,871 and the females 15,155, while among the 37,537 in 1914 the males were 23,038 and the females 14,499. The per cent male was 61.2 in 1915 and 61.4 in 1914 against the average of 62.0 for 1906 to 1915, the proportion of males among decedents having decreased somewhat since 1906, especially in the most recent years. In both 1915 and 1914 the per cent male was highest for northern California and next for central California.

The per cents male were above the general average for deaths from suicide, other violence, typhoid fever, pulmonary tuberculosis, Bright's disease, and heart disease, etc. The female decedents exceeded or

nearly equalled the males each year only for whooping cough, cancer, diphtheria, measles, scarlet fever, and influenza.

Race.—In 1915 the white decedents numbered 36,890; the Chinese, 751; the Japanese, 663; the negroes, 583; and the Indians, 139. The figures for 1914 were: White, 35,513; Chinese, 657; Japanese, 628; negro, 569; and Indian, 170. The per cent white was 94.5 in 1915 and 94.6 in 1914, or about the same as the average of 94.6 for the last ten years, the proportion of Caucasians among decedents having varied only slightly since 1906. In both 1915 and 1914 the per cent white was highest for southern California.

The per cents white were very high indeed for deaths from diphtheria, cancer, diseases of the nervous and circulatory systems, scarlet fever, measles, and Bright's disease.

The proportions of Caucasians among all decedents was low each year for typhoid fever, which causes many deaths of Japanese, and for tuberculosis, which kills many Chinese and negroes.

Nativity.—Of the white decedents in 1915 and 1914 those born in other states were 14,905 and 13,952; the foreign born were 11,761 and 11,177; those born in California were 9,235 and 9,412; and the nativity was unknown for 989 and 972. The per cent distribution of white decedents in 1915 and 1914, respectively, was: Other states, 40.4 and 39.3; foreign countries, 31.9 and 31.5; California, 25.0 and 26.5; and unknown, 2.7 each year. For 1906 to 1915, moreover, the annual average per cents were: Other American, 37.7; foreign, 31.8; Californian, 27.3; and unknown, 3.2.

Between 1906 and 1915 the proportion of other Americans among white decedents increased considerably, the proportion foreign born remained quite stationary, and the proportion of native Californians decreased somewhat.

The proportion born elsewhere in the United States is very high for southern California, especially Los Angeles. The proportion foreign born is notably great only for central California, especially for San Francisco and the other bay counties. The proportion of native Californians among decedents was greatest each year in central California, and next in northern California.

The proportion of native Californians is especially great for deaths from early infancy, diarrhea and enteritis, whooping cough, measles, diphtheria, scarlet fever, meningitis, tuberculosis other than pulmonary, typhoid fever, malarial fever, pneumonia, and childbirth.

The per cents born in other states were above the general averages for deaths from heart disease, diseases of the nervous system other than meningitis, cancer, Bright's disease, diseases of the circulatory system, pulmonary tuberculosis, and influenza two years and over and other diseases of the digestive system, and general diseases other than tuberculosis and cancer, such as cholera, etc.

The proportions foreign born were above the general averages for deaths from heart disease, cancer, Bright's disease, suicide and homicide, meningitis, diseases of the respiratory, nervous and circulatory systems except pulmonary meningitis and diarrhea, pneumonia,

Age Periods.—The deaths in 1915 and 1914, respectively, were distributed by age periods as follows: Under 1 year, 3,570 and 3,964; 1 to 4 years, 1,510 and 1,628; 5 to 14 years, 1,089 and 1,081; 15 to 24 years, 2,144 and 2,125; 25 to 34 years, 3,759 and 3,770; 35 to 44 years, 4,265 to 4,249; 45 to 54 years, 4,777 and 4,579; 55 to 64 years, 5,471 and 5,019; and 65 years and over, 12,441 and 11,122.

The corresponding per cents for 1915 and 1914 were: Under 1 year, 9.2 and 10.6; 1 to 4 years, 3.9 and 4.3; 5 to 14 years, 2.8 and 2.9; 15 to 24 years, 5.5 and 5.7; 25 to 34 years, 9.6 and 10.0; 35 to 44 years, 10.9 and 11.3; 45 to 54 years, 12.2 each year; 55 to 64 years, 14.0 and 13.4; and 65 years and over, 31.9 and 29.6. Moreover, the annual average per cent distribution for 1911 to 1915 was: Under 1, 10.4; 1 to 4, 4.2; 5 to 14, 2.8; 15 to 24, 5.9; 25 to 34, 9.9; 35 to 44, 11.2; 45 to 54, 12.1; 55 to 64, 13.3; 65 years and over, 30.2.

Comparison of per cents by five age periods since 1906 and by nine since 1911 shows that there have been marked decreases in the proportion of deaths occurring in infancy, childhood, youth, and successive productive ages to 44, that the proportion is stationary for deaths at 45 to 54 years, and that there have been notable increases in the proportion of total deaths at 55 to 64 years and at 65 years and over.

Median Age.—The median age of California decedents, half being younger and half older, was 51.8 years in 1915 against 49.6 in 1914, 49.4 in 1913, 49.2 in 1912, and 48.8 in 1911. Every year Californians live longer, the median age at death having advanced three years between 1911 and 1915. The advance was particularly great from 1914 to 1915 and appeared for every geographic division in the state and for about all of the leading causes of death.

In both 1915 and 1914 the median age was highest by far for northern California, 56.3 and 55.8, and was slightly higher for central California, 51.4 and 49.4, than for the territory south of Tehachapi, 51.2 and 47.8.

The median ages were 50.3 and 48.3 for San Francisco and 50.1 and 46.5 for Los Angeles City in 1915 and 1914, respectively.

Each year the median age was notably low for typhoid fever, 28.6 and 28.7; tuberculosis, 34.9 and 34.7; miscellaneous violence, 37.5 and 36.6; suicide, 44.3 and 41.8; as well as digestive ailments including diarrhea, 37.9 and 36.4.

On the other hand, the median ages in 1915 and 1914 were relatively high for other causes as follows: Respiratory system (pneumonia, etc.), 55.9 and 47.6; cancer, 61.3 and 60.4; nervous system (apoplexy, etc.), 61.9 and 61.4; Bright's disease, 63.0 and 62.3; and circulatory system (heart disease, etc.), 68.0 and 67.0.

The median age was practically the same for each sex in 1915, though considerably higher for men than for women in 1914.

Marital Condition of Decedents.—Exclusive of children under 15, the classification of male decedents totaling 20,394 and 19,315 in 1915 and 1914 was: Single, 6,408 and 6,082, married, 9,275 and 8,750; widowed, 3,049 and 2,800; divorced, 376 and 347; and unknown, 1,286 and 1,336. The marital condition of females aged 15 and over totaling 12,463 and 11,549 was: Single 1,492 and 1,375; married, 5,824 and 5,627; widowed, 4,872 and 4,255; divorced, 172 and 154; and unknown, 103 and 138.

The annual average per cents for 1913 to 1915 were: Single—males, 31.8, but females, 12.1; married—males, 45.0 and females, 47.8; widowed—males, 14.8, but females, 37.7; divorced—males, 1.7 and females, 1.3; and unknown—males, 6.7, but females, 1.1. Male decedents exceed in the per cent single, and females in the per cent widowed, the proportion married being about the same for each sex.

Among men the per cent single was much greater, and the per cent married much less, for the territory north of Tehachapi than for that to the south, somewhat similar contrasts appearing among women but in only slight degree. Southern California excels in the proportion of widowers and northern and central California in the proportion of widows among decedents.

The per cents single, among both men and women, were above general averages for deaths from tuberculosis, typhoid fever, suicide and other violence.

The proportion married was high among men for cancer, nervous diseases, Bright's disease, digestive ailments, heart disease, etc., and among women for typhoid fever, tuberculosis, suicide, miscellaneous causes, cancer, digestive ailments, and Bright's disease.

In general, the per cents for both widowers and widows were particularly great for heart disease, etc., Bright's disease, nervous diseases, and respiratory troubles.

Occupations and Causes of Death.—Of the decedents aged 15 years and over for whom occupations were reported, totaling 18,778 in 1915 and 17,859 in 1914, the males numbered 17,600 and 16,673, while the females were only 1,178 and 1,186, the per cents male being 93.7 and 93.4 and female merely 6.3 and 6.6.

The per cents of deaths from typhoid fever were notably high among men in the following specific occupations: Butchers, plumbers, sailors, clerks, machinists, common laborers, farmers and brick masons. The proportions were also high for nurses among women workers.

Tuberculosis caused relatively more deaths among both men and women workers than among men without occupation or women with only home duties. The per cents of deaths from tuberculosis were particularly high for the following occupations of men: Barbers, waiters, clerks, engineers and surveyors, tailors, plumbers, musicians, common laborers, architects, draymen, iron and steel workers, saloon keepers, miners, cabinet makers, printers, and stationary engineers. The proportions were also relatively high for clerks among women wage earners. On the other hand, the proportions of deaths from tuberculosis were very low indeed for policemen, clergymen, lawyers, bankers, farmers, stock raisers, merchants, physicians, hotel keepers, florists, lumbermen, soldiers, and blacksmiths.

Miscellaneous violence, like tuberculosis, caused relatively more deaths among both men and women reporting gainful occupations than among those without wage-earning employments. The per cents of deaths from accidents were especially high among men in the following occupations: Lumbermen, railroad employees, hucksters, sailors, draymen, policemen, common laborers, soldiers, stationary engineers, machinists, engineers and surveyors, and miners. However, the proportions of deaths from violence were remarkably small among clergymen, lawyers, printers.

bankers, architects, brick masons, butchers, boot and shoe makers, merchants, clerks, barbers, saloon keepers, and musicians.

The statistics show varying relations between occupations and causes of deaths for persons in different specific occupations dying from cancer, diseases of the circulatory system, Bright's disease, diseases of the nervous, respiratory and digestive systems, and from suicide.

CAUSES OF DEATH.

The State.—Table 1, on pages 252-253, gives the number of deaths in California from certain principal causes, as well as the proportion per 1,000 total deaths and also the death rate per 100,000 estimated midyear population, for each year in the ten-year period just ended. The table also presents annual average proportions and rates for the ten years, 1906 to 1915.

TABLE 1.—Deaths from Certain Principal Causes, with Proportion per 100,000 Total Deaths and Death Rate per 100,000 Population for California: 1906 to 1915.

Cause of death	Deaths										Proportion per 1,000 total deaths					
	1913	1914	1913	1912	1911	1910	1909	1908	1907	1906	Annual average 1906 to 1915	1913	1914	1913	1914	1911
All causes	39,026	37,537	38,549	36,709	34,012	32,396	30,965	31,297	31,005	29,808	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	276	376	436	454	444	477	461	540	558	657	14.1	7.1	10.0	11.3	12.4	18.0
Malarial fever	45	70	77	101	121	113	112	80	70	111	2.7	1.1	1.9	2.0	2.7	3.5
Smallpox	3	1	15	16	9	1	6	9	6	36	0.3	0.1	—	0.4	0.4	0.8
Measles	132	133	134	134	84	190	119	101	189	169	4.3	3.4	4.1	4.0	3.6	2.5
Scarlet fever	63	90	85	34	81	69	60	104	72	52	2.1	1.4	2.4	2.3	0.9	2.4
Whooping cough	124	306	128	183	177	307	217	149	173	122	5.0	3.2	3.2	3.3	5.3	5.2
Diphtheria and croup	310	268	196	158	167	218	218	301	390	244	7.7	7.9	7.1	4.8	4.3	4.9
Influenza	181	138	220	146	125	73	82	125	114	199	4.1	4.5	3.7	5.7	4.0	3.7
Plague	1	—	2	—	1	1	1	5	82	—	0.3	—	—	—	—	—
Other epidemic diseases	116	132	180	186	169	204	108	136	121	174	4.5	3.0	3.5	4.7	5.1	5.0
Tuberculosis of lung	4,752	4,529	4,536	4,316	4,353	4,161	4,061	3,945	4,040	3,891	125.3	121.8	120.6	117.5	117.6	126.0
Tuberculosis of other organs	799	791	866	812	761	711	612	680	567	576	20.8	20.5	21.1	22.4	22.1	22.4
Cancer	2,776	2,667	2,565	2,305	2,029	1,994	1,945	1,737	1,590	1,502	61.3	71.1	71.6	63.4	62.8	59.6
Other general diseases	1,645	1,591	1,733	1,621	1,533	1,387	1,177	1,186	1,095	1,016	40.6	42.1	42.4	44.8	44.2	45.3
Menigitis	273	331	405	346	381	399	396	571	657	467	12.5	7.0	8.8	10.5	8.4	11.2
Other diseases of nervous system	3,151	3,239	3,315	2,960	2,796	2,632	2,479	2,422	2,408	2,397	51.0	80.7	86.3	85.9	80.6	82.2
Diseases of circulatory system	7,251	6,397	6,231	6,376	5,516	5,067	4,966	4,540	4,362	3,760	136.6	185.8	170.4	163.7	173.7	162.2
Pneumonia and broncho-pneumonia	3,063	2,677	2,968	2,996	2,672	2,438	2,061	2,421	2,473	2,431	77.4	78.5	71.3	76.1	80.9	78.6
Other diseases of respiratory system	728	786	863	872	802	775	842	861	910	759	24.3	18.7	20.9	22.5	23.7	23.6
Diarrhea and enteritis, under 2 years	795	889	1,270	1,056	1,016	1,029	996	922	890	900	28.9	20.4	23.7	32.9	28.3	29.9
Diarrhea and enteritis, 2 years and over	415	362	369	359	307	293	270	243	295	333	9.4	10.6	9.4	9.6	9.8	9.0
Other diseases of digestive system	1,949	1,932	1,995	1,990	1,766	1,633	1,596	1,646	1,588	1,410	51.3	49.9	51.5	51.7	53.9	51.9
Bright's disease and nephritis	2,854	2,446	2,392	2,185	2,084	1,898	1,797	1,757	1,757	1,622	61.3	68.8	65.2	62.0	59.5	64.2
Childbirth	356	344	395	363	355	306	300	339	295	296	9.6	9.1	9.2	10.2	9.9	10.4
Diseases of early infancy	1,478	1,454	1,444	1,369	1,166	1,129	936	1,108	1,031	946	36.4	37.9	38.7	37.4	37.3	34.3
Suicide	1,065	912	887	803	762	706	702	757	693	601	23.2	26.5	24.3	21.7	21.9	22.1
Earthquake and fire	—	—	—	—	—	—	—	—	—	750	2.6	—	—	—	—	—
Other violence	3,110	3,076	3,133	2,962	2,696	2,568	2,569	2,711	2,711	2,152	80.4	79.7	81.9	81.3	80.4	79.0
All other causes	1,625	1,570	1,774	1,682	1,563	1,616	1,748	1,973	1,851	1,966	51.4	39.1	41.8	46.0	45.8	43.7

bankers, architects, brick masons, butchers, boot and shoe makers, merchants, clerks, barbers, saloon keepers, and musicians.

The statistics show varying relations between occupations and causes of deaths for persons in different specific occupations dying from cancer, diseases of the circulatory system, Bright's disease, diseases of the nervous, respiratory and digestive systems, and from suicide.

CAUSES OF DEATH.

The State.—Table 1, on pages 252-253, gives the number of deaths in California from certain principal causes, as well as the proportion per 1,000 total deaths and also the death rate per 100,000 estimated midyear population, for each year in the ten-year period just ended. The table also presents annual average proportions and rates for the ten years, 1906 to 1915.

Table 1 shows that diseases of the circulatory system, heart disease, etc., constitute the principal group of causes of death in California. Diseases of the circulatory system caused 18.6 per cent of all deaths in 1915 and 17.0 per cent in 1914, against the annual average of 15.9 for 1906 to 1915. The death rates per 100,000 population for this class of diseases were 254.0 and 231.5 in 1915 and 1914, respectively, as compared with the annual average of 221.2 for the whole ten-year period. In fact, the death rate for heart disease, etc., increased greatly through the ten years thus: 185.1 (1906), 205.2, 204.9, 215.3, 212.2, 221.7, 247.2, 235.1, 231.5, and 254.0 (1915).

Tuberculosis, however, is the leading single cause of death in California. Each year about one-seventh of all deaths in the state were due to this disease, the per cent being 14.2 for both 1915 and 1914 against the average of 14.6 for 1906 to 1915. In 1915, 12.2 per cent of all deaths were from tuberculosis of the lungs and 2.0 per cent from tuberculosis of other organs, while for 1914 the corresponding figures were 12.1 and 2.1. The death rate per 100,000 population for all forms of tuberculosis was 194.5 in 1915 and 192.5 in 1914, against the average of 204.0 for the last ten years. In contrast with the great increase in death rates for diseases of the circulatory system between 1906 and 1915, there was an appreciable decrease in the death rates for tuberculosis of all forms during the same period as follows: 218.0 (1906), 216.8, 206.1, 202.6, 203.3, 205.5, 198.8, 202.2, 192.5, and 194.5 (1915).

Next after diseases of the circulatory system and various forms of tuberculosis taken together come diseases of the respiratory system, pneumonia, etc. Diseases of this class caused 9.7 per cent of all deaths in 1915 and 9.2 per cent in 1914, as compared with the average of 10.2 per cent for 1906 to 1915. Pneumonia and broncho-pneumonia caused 7.8 per cent of all deaths in 1915 and 7.1 per cent in 1914, while other diseases of the respiratory system caused 1.9 and 2.1 per cent, respectively. The death rate per 100,000 population for all diseases of the respiratory system was 132.8 in 1915 and 125.4 in 1914 against the average of 142.3 for 1906 to 1915. The death rate for diseases of the respiratory system decreased in the main, while varying somewhat irregularly in the ten years thus: 156.6 (1906), 168.8, 148.2, 126.7, 134.0, 139.6, 148.9, 142.5, 125.4, and 132.8 (1915).

For meningitis and other diseases of the nervous system in 1915 and 1914, respectively, the per cents of deaths were 8.8 and 9.5 against the ten-year average of 9.4, meningitis causing 0.7 per cent of all deaths in 1915 and 0.9 per cent in 1914 against the average of 1.3 per cent. The death rate per 100,000 population for all diseases of the nervous system was 120.0 in 1915 and 129.2 in 1914, against the average of 130.7 for the ten-year period. The successive death rates were as follows from 1906 to 1915: 135.8, 144.0, 135.1, 124.8, 125.2, 127.7, 126.6, 139.2, 129.2, and 120.0.

Diseases of the digestive system (diarrhea and enteritis, etc.) caused 8.1 per cent of all deaths in 1915 and 8.5 per cent in 1914 against the ten-year average of 9.0. The deaths from diarrhea and enteritis among children under two years of age were 2.0 per cent of the total deaths

at all ages in 1915 and 2.4 per cent in 1914 against the average of 2.9 per cent. The death rate per 100,000 population for diarrhea and other diseases of the digestive system was 110.6 in 1915 and 114.8 in 1914 against the average of 125.2 for the whole decade. Between 1906 and 1914 the death rates for all diseases of the digestive system were successively as follows: 131.6, 130.5, 126.9, 122.8, 122.8 again, 124.1, 131.6, 136.0, 114.8, and 110.6.

Miscellaneous violence exclusive of suicide was the cause for 8.0 per cent of all deaths in 1915 and 8.2 per cent in 1914, against the ten-year average of 8.0 (exclusive of 0.3 for deaths from earthquake and fire in 1906). The death rate per 100,000 population for miscellaneous violence (drowning, automobile accidents, railroad injuries, etc.) was 108.9 in 1915 and 111.3 in 1914 against the annual average of 112.4 for the ten-year period. The death rate per 100,000 population of 36.9 for earthquake and fire in 1906 represents an additional average of 3.7 for the whole decade. Exclusive of deaths from this exceptional cause all in a single year, the death rates per 100,000 population ranged as follows for miscellaneous violence: 105.7 (1906), 127.6, 115.9, 111.1, 103.7, 107.9, 114.4, 117.3, 111.3, and 108.9 (1915).

Suicide was the cause for 2.7 per cent of all deaths in 1915 and 2.4 per cent in 1914, against the ten-year average of 2.2, while the death rates per 100,000 population were 36.3 and 33.0, against the average of 30.9. A growing tendency toward self-destruction is indicated by the successive death rates per 100,000 population for suicide from 1906 to 1915, as follows: 24.6, 28.6, 34.2, 30.4, 29.5, 30.2, 31.1, 31.3, 33.0, and 36.3. The former high death rate of 34.2 for suicides in 1908 is surpassed greatly by the suicide death rate of 36.3 for 1915.

Cancers of various kinds caused 7.1 per cent of all deaths in 1915 and 7.2 per cent in 1914, against the ten-year average of 6.1, while the death rates per 100,000 population were 97.2 and 97.3 against the average of 85.6. The death rate for cancer increased greatly between 1906 and 1915 thus: 73.8, 74.8, 78.4, 84.3, 82.8, 81.5, 89.4, 96.0, 97.3, and 97.2.

Bright's disease and nephritis caused 6.9 per cent of all deaths in 1915 and 6.5 per cent in 1914 against the ten-year average of 6.1, while the death rates per 100,000 population were 94.0 and 88.5 against the average of 85.5. Corresponding to the increase in the death rate for cancer there has also been a great increase in the death rate for Bright's disease and nephritis as follows: 79.7 (1906), 84.1, 81.1, 80.6, 84.9, 87.8, 84.7, 89.5, 88.5, and 94.0 (1915).

In contrast with the marked increases in death rates for both cancer and Bright's disease, there were notable decreases in death rates for various epidemic diseases, between 1906 and 1915, these decreases being shown both for all epidemic diseases taken together and for a group of the principal epidemic diseases specially selected. For all epidemic diseases together (including even influenza, plague, and sundry minor epidemic diseases) the annual average rate for 1906 to 1915 was 64.1 and the successive yearly rates were as follows: 86.7, 83.1, 73.5, 62.0,

69.5, 55.5, 55.0, 55.6, 55.5, and 43.5. For a special selected group of the principal epidemic diseases (including only typhoid fever, malarial fever, smallpox, measles, scarlet fever, whooping cough and diphtheria and croup) the average annual rate for the ten-year period was 51.7 and the yearly rates ranged successively thus: 68.5 (1906), 68.2, 62.0, 53.6, 57.8, 43.6, 42.2, 40.6, 45.7, and 33.1 (1915).

Typhoid fever has been by far the most fatal of the epidemic diseases in California, though surpassed by diphtheria in total deaths for 1915 alone. However, the death total for typhoid fever decreased quite steadily throughout the ten years last past as follows: 657 (1906), 558, 540, 461, 477, 444, 454, 436, 376, and 276 (1915). The per cent of total deaths from typhoid fever, averaging 1.4 (14.1 per 1,000) for the ten years, ranged downward continuously between 1906 and 1915 thus: 2.2, 1.8, 1.7, 1.5, 1.5 again, 1.3, 1.2, 1.1, 1.0, and 0.7. Similarly, the death rate per 100,000 population, averaging 19.8 for the whole decade, was less each succeeding year as follows: 32.3 (1906), 26.3, 24.4, 20.0, 19.9, 17.8, 17.6, 16.3, 13.6, and 9.7 (1915). In the ten-year period the death total for typhoid fever fell from 657 in 1906 to only 276 in 1915, a drop of 381 or 58.0 per cent or almost three-fifths. The typhoid fever death total last year was thus only about two-fifths of the total ten years before. With deaths from other causes increasing, the per cent of total deaths due to typhoid fever fell between 1906 and 1915 from 2.2 to 0.7 (or from 22.4 to 7.1 per 1,000), so that the proportion for 1915 was only one-third of that for 1906. Moreover, with total population increasing even faster than total deaths, the death rate for typhoid fever per 100,000 inhabitants fell from 32.3 in 1906 to only 9.7 for 1915. The typhoid fever death rate last year was thus only about one-fourth as great as the corresponding rate ten years previously.

For diphtheria and croup the death totals ranged irregularly between 1906 and 1915 as follows: 244, 380, 391, 248, 218, 167, 158, 186, 268, and 310. The death rates per 100,000 population for diphtheria and croup, averaging 10.8 for the ten-year period, likewise varied greatly thus: 12.0 (1906), 17.9, 17.6, 10.8, 9.1, 6.7, 6.1, 7.0, 9.7, and 10.9 (1915).

The death totals for whooping cough ranged up and down in the ten years thus: 122 (1906), 173, 149, 217, 307, 177, 193, 128, 306, and 124 (1915). The whooping cough death rates, averaging 7.8 for the whole decade, also varied considerably as follows from 1906 to 1915: 6.0, 8.1, 6.7, 9.4, 12.8, 7.1, 7.5, 4.8, 11.1, and 4.3.

The deaths from measles varied somewhat, though within a narrow range as follows: 169 (1906), 189, 101, 119, 199, 84, 134, 154, 153, and 132 (1915). The death rates for measles, averaging 6.0 for the ten-year period, were as follows in succeeding years from 1906 to 1915: 8.3, 8.9, 4.6, 5.2, 8.3, 3.4, 5.2, 5.8, 5.5, and 4.6.

The deaths from malarial fever decreased greatly between 1906 and 1915 thus: 111, 70, 80, 112, 113, 121, 101, 77, 70, and 45. The death rates for malarial fever, averaging 3.8 for the whole decade, likewise declined sharply as follows: 5.5 (1906), 3.3, 3.6, 4.9, 4.7, 4.9, 3.9, 2.9, 2.5, and 1.6 (1915).

The deaths from scarlet fever ranged as follows within narrow limits: 52 (1906), 72, 104, 69, 69 again, 81, 34, 85, 90, and 53 (1915). The death rates for scarlet fever, averaging 3.0 for the whole period, were as follows in successive years between 1906 and 1915: 2.6, 3.4, 4.7, 3.0, 2.9, 3.3, 1.3, 3.2, 3.3, and 1.9.

In 1915 and 1914, respectively, the deaths from influenza totaled 181 and 138 as compared with 220 for 1913 and 146 for 1912, the totals having been even less for all earlier years except only 1906 (196). The annual average death rate for influenza in 1906 to 1915 was 5.7 per 100,000 population, the rate being 6.3 for 1915 and 5.0 for 1914, as compared with 8.2 for 1913 and 5.6 for 1912, and the maximum rate in any year having been that of 9.6 for 1906.

There were three deaths from smallpox in 1915 and a lone one in 1914 in contrast with 15 in 1913 and 16 in 1912. There was also one death from plague in 1915 but none in 1914 as compared with two in 1913 and none in 1912.

Main Geographic Divisions.—Table 2, which follows, gives for the three main geographic divisions in 1915 and 1914 the number of deaths from certain principal causes, as well as the proportion from each cause per 1,000 total deaths. The death rates per 100,000 population are not shown for geographic divisions, because of the difficulty of estimating population for different localities with sufficiently equal accuracy to justify the comparison of detailed death rates for individual causes of death.

Table 2 shows that the proportions per 1,000 total deaths for typhoid fever were relatively high each year for northern California (10.2 and 11.6) and for central California (7.8 and 10.7) in comparison with the state averages of 7.1 and 10.0 for 1915 and 1914, respectively.

The proportions were also above the state averages both years for central California for deaths from diphtheria and croup (9.5 and 8.6 against averages of 7.9 and 7.1) and from whooping cough (3.4 and 10.6 against 3.2 and 8.2).

The proportion was likewise above the state average each year for northern California for whooping cough (4.9 and 8.6 against averages of 3.2 and 8.2; measles in general (6.1 and 3.5 against 3.4 and 4.1); influenza (9.0 and 5.8 against 4.6 and 3.7); and malarial fever (4.4 and 6.8 against 1.1 and 1.9).

The proportion of total deaths in southern California was not specially great for any of the epidemic diseases in either 1915 or 1914.

For northern California the proportions are particularly high for deaths from violence other than suicide, being no less than 101.0 and 101.3 for this main division against 79.7 and 81.9 for the whole state, as well as for diseases of the nervous system other than meningitis, being 92.9 and 106.6 for this main division against 80.7 and 86.3 for the state in 1915 and 1914, respectively.

Central California excels in the proportions for diseases of the circulatory system (heart disease, etc.), 191.1 and 179.7 against state averages of 185.8 and 170.4; for pneumonia and broncho-pneumonia, 86.0 and 79.1 against 78.5 and 71.3; and for cancer, generally speaking, 73.4 and 71.4 against 71.1 and 71.6.

Southern California leads decidedly in the proportions for tuberculosis. The proportions per 1,000 total deaths for tuberculosis of the lungs were no less than 146.4 and 148.0 for this main division against only 121.8 and 120.6 for the entire state, and for tuberculosis of other organs were 20.8 and 23.0 for this division against 20.5 and 21.1 for the state. The proportions for southern California were also notably high for Bright's disease and nephritis, 74.6 and 68.9 against 68.8 and 65.2; as well as for cancer, 72.9 each year against 71.1 in 1915 and 71.6 in 1914.

Minor Geographic Divisions.—Table 3 on the following pages presents similar figures for the eight minor geographic divisions.

TABLE 2. Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Main Geographic Divisions:* 1915 and 1914.

Cause of death	The State		Northern California		Central California		Southern California	
	1915	1914	1915	1914	1915	1914	1915	1914
Deaths.								
All causes	39,026	37,537	4,101	3,957	20,803	20,089	14,122	13,491
Typhoid fever	276	376	42	46	163	215	71	115
Malarial fever	45	70	18	27	21	37	6	6
Smallpox	3	1			2	1	1	
Measles	132	153	25	14	69	116	38	23
Scarlet fever	53	90	7	13	26	58	20	19
Whooping-cough	124	306	20	34	70	213	34	59
Diphtheria and croup	310	268	14	23	197	173	99	72
Influenza	181	138	37	23	72	71	72	44
Plague	1				1			
Other epidemic diseases	116	132	15	14	63	68	38	50
Tuberculosis of lungs	4,752	4,529	375	382	2,310	2,151	2,067	1,996
Tuberculosis of other organs	799	791	71	61	435	420	298	310
Cancer	2,776	2,687	220	268	1,527	1,435	1,029	984
Other general diseases	1,645	1,591	173	191	874	841	598	559
Meningitis	273	331	20	35	157	162	96	134
Other diseases of nervous system	3,151	3,239	381	422	1,623	1,623	1,147	1,189
Diseases of circulatory system	7,251	6,397	792	682	3,975	3,009	2,484	2,106
Pneumonia and broncho-pneumonia	3,063	2,677	361	284	1,790	1,568	912	805
Other diseases of respiratory system	728	786	82	77	418	440	227	269
Diarrhea and enteritis, under 2 years	795	889	43	51	409	432	343	406
Diarrhea and enteritis, 2 years and over	415	352	49	34	196	186	170	132
Other diseases of digestive system	1,949	1,962	208	200	1,092	1,091	649	641
Bright's disease and nephritis	2,684	2,446	268	203	1,363	1,314	1,063	929
Childbirth	356	344	30	34	202	188	124	122
Diseases of early infancy	1,478	1,454	138	138	742	760	598	556
Suicide	1,035	912	105	82	592	544	338	286
Other violence	3,110	3,076	414	401	1,076	1,512	1,020	1,003
All other causes	1,525	1,370	192	218	738	736	595	616
Proportion per 1,000 Total Deaths.								
All causes	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	7.1	10.0	10.2	11.6	7.8	10.7	5.0	8.5
Malarial fever	1.1	1.9	4.4	6.8	1.0	1.8	0.4	0.5
Smallpox	0.1	†			0.1	†	0.1	
Measles	3.4	4.1	6.1	3.5	3.3	5.8	2.7	1.7
Scarlet fever	1.4	2.4	1.7	3.3	1.2	2.9	1.4	1.4
Whooping-cough	3.2	8.2	4.9	8.6	3.4	10.6	2.4	4.4
Diphtheria and croup	7.9	7.1	3.4	5.8	9.5	8.6	7.0	5.3
Influenza	4.6	3.7	9.0	5.8	3.5	3.5	5.1	3.3
Plague	†				†			
Other epidemic diseases	3.0	3.5	3.7	3.5	3.0	3.4	2.7	3.7
Tuberculosis of lungs	121.8	120.6	91.4	96.6	111.1	107.1	146.4	143.0
Tuberculosis of other organs	20.5	21.1	17.3	15.4	20.9	20.9	20.8	22.0
Cancer	71.1	71.6	53.6	67.7	73.4	71.4	72.9	72.9
Other general diseases	42.1	42.4	42.2	48.3	42.0	41.9	42.3	41.4
Meningitis	7.0	8.8	4.9	8.9	7.5	8.1	6.8	9.9
Other diseases of nervous system	80.7	86.3	92.9	106.6	78.0	81.0	81.2	88.1
Diseases of circulatory system	185.8	170.4	198.1	172.4	191.1	179.7	175.9	156.1
Pneumonia and broncho-pneumonia	78.5	71.8	88.0	71.8	86.0	79.1	64.6	59.7
Other diseases of respiratory system	18.7	20.9	20.2	19.5	20.1	21.9	16.1	19.9
Diarrhea and enteritis, under 2 years	20.4	23.7	10.5	12.9	19.7	21.5	24.3	30.1
Diarrhea and enteritis, 2 years and over	10.6	9.4	12.0	8.6	9.4	9.3	12.0	9.8
Other diseases of digestive system	49.9	51.5	50.7	50.5	52.5	54.3	46.0	47.5
Bright's disease and nephritis	68.8	65.2	65.4	51.3	65.5	66.4	74.6	68.9
Childbirth	9.1	9.3	7.3	8.6	9.7	9.4	8.8	9.0
Diseases of early infancy	37.9	38.7	33.7	34.9	35.7	37.8	42.3	41.2
Suicide	26.5	24.3	25.6	20.7	23.5	27.1	23.9	21.2
Other violence	79.7	81.9	101.0	101.3	80.6	80.2	72.2	73.8
All other causes	39.1	41.8	46.8	55.1	35.5	36.6	42.1	45.7

*For list of counties included in geographic divisions, see page 186.

†When the number of deaths is less than one thousand.

TABLE 3.—Deaths from Certain Principal Causes, with Proportion

Cause of death	The State	Deaths					
		Northern California		Central California			
		Coast counties	Interior counties	San Francisco	Other bay counties	Coast counties	Interior counties
1915.							
All causes	39,026	2,088	2,013	7,259	4,706	2,610	6,228
Typhoid fever	276	7	35	41	37	14	71
Malarial fever	45	1	17	2		1	18
Smallpox	3				1	1	
Measles	132	14	11	17	15	19	18
Scarlet fever	53	4	3	7	3	4	12
Whooping-cough	124	8	12	20	22	9	19
Diphtheria and croup	310	6	8	114	35	12	36
Influenza	181	16	21	9	9	22	32
Plague	1				1		
Other epidemic diseases	116	5	10	19	13	6	25
Tuberculosis of lungs	4,752	170	205	784	491	259	776
Tuberculosis of other organs	799	41	30	170	105	50	110
Cancer	2,776	120	100	586	395	173	373
Other general diseases	1,645	89	84	312	214	105	243
Meningitis	273	14	6	43	30	24	60
Other diseases of nervous system	3,151	228	143	452	367	312	492
Diseases of circulatory system	7,251	440	352	1,536	982	572	885
Pneumonia and broncho-pneumonia	3,063	167	194	644	476	194	476
Other diseases of respiratory system	728	42	41	144	85	56	123
Diarrhea and enteritis, under 2 years	795	20	23	96	89	46	178
Diarrhea and enteritis, 2 years and over	415	29	20	44	36	32	84
Other diseases of digestive system	1,949	115	98	421	221	124	316
Bright's disease and nephritis	2,684	142	126	500	276	152	433
Childbirth	356	16	14	56	49	22	75
Diseases of early infancy	1,478	67	71	219	163	73	287
Suicide	1,085	50	55	271	98	48	177
Other violence	3,110	171	243	495	313	174	661
All other causes	1,525	96	96	257	140	106	225
1914.							
All causes	37,537	2,014	1,943	6,940	4,576	2,472	6,101
Typhoid fever	376	20	26	57	39	17	108
Malarial fever	70	3	24	5	3	5	24
Smallpox	1						1
Measles	153	6	8	42	41	12	21
Scarlet fever	90	3	10	4	7	2	45
Whooping-cough	306	15	19	56	71	27	59
Diphtheria and croup	268	14	9	86	47	3	37
Influenza	138	9	14	10	12	8	41
Other epidemic diseases	132	8	6	23	14	8	23
Tuberculosis of lungs	4,529	192	190	778	445	243	685
Tuberculosis of other organs	791	32	29	169	89	49	113
Cancer	2,687	157	111	572	326	186	351
Other general diseases	1,591	92	99	287	214	104	226
Meningitis	331	15	20	55	33	17	57
Other diseases of nervous system	3,239	254	168	419	382	399	525
Diseases of circulatory system	6,397	332	350	1,409	907	494	799
Pneumonia and broncho-pneumonia	2,677	149	135	569	388	158	473
Other diseases of respiratory system	786	43	34	161	108	51	120
Diarrhea and enteritis, under 2 years	889	23	28	94	76	59	202
Diarrhea and enteritis, 2 years and over	352	12	22	43	34	32	77
Other diseases of digestive system	1,932	98	102	404	212	143	332
Bright's disease and nephritis	2,446	111	92	472	290	147	405
Childbirth	344	15	19	56	45	27	60
Diseases of early infancy	1,454	76	62	235	183	81	261
Suicide	912	46	36	233	124	40	147
Other violence	3,076	174	227	476	323	167	647
All other causes	1,570	115	108	225	165	98	253

*Less than one-tenth of 1 per thousand.

BUREAU OF VITAL STATISTICS.

261

per 1,000 Total Deaths, for Minor Geographic Divisions: 1915 and 1914.

Southern California		Proportion per 1,000 total deaths								
		The State	Northern California		Central California				Southern California	
Los Angeles	Other counties		Coast counties	Interior counties	San Francisco	Other bay counties	Coast counties	Interior counties	Los Angeles	Other counties
9,590	4,532	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
38	33	7.1	3.3	17.4	5.7	7.9	5.4	11.4	4.0	7.3
2	4	1.1	0.5	8.4	0.3		0.4	2.9	0.2	0.9
1		0.1				0.2	0.4		0.1	
26	12	3.4	6.7	5.5	2.3	3.2	7.3	2.9	2.7	2.6
14	6	1.4	1.9	1.5	1.0	0.6	1.5	1.9	1.5	1.3
21	13	3.2	3.8	6.0	2.8	4.7	3.5	3.1	2.2	2.9
66	33	7.9	2.9	4.0	15.7	7.4	4.6	5.8	6.9	7.3
40	32	4.6	7.7	10.4	1.2	1.9	8.4	5.1	4.2	7.1
		*				0.2				
27	11	3.0	2.4	5.0	2.6	2.8	2.3	4.0	2.8	2.4
1,406	661	121.8	81.4	101.8	108.0	104.3	99.2	124.6	146.6	145.8
187	106	20.5	19.6	14.9	23.4	22.3	19.2	17.7	19.5	23.4
750	279	71.1	67.5	49.7	80.7	83.0	66.3	59.9	78.2	61.6
408	195	42.1	42.6	41.7	43.0	45.5	40.2	39.0	42.0	43.0
59	37	7.0	6.7	3.0	5.9	6.4	9.2	9.6	6.2	8.2
707	440	80.7	114.0	71.0	62.3	78.0	119.5	79.0	73.7	97.1
1,781	703	185.8	210.7	174.9	211.6	208.7	219.1	142.1	185.7	155.1
667	255	78.5	80.0	96.4	88.7	101.1	74.3	76.4	68.5	56.3
151	76	13.7	20.1	20.4	19.8	18.1	21.5	21.4	15.7	16.8
197	146	20.4	9.6	11.4	13.2	18.9	17.6	28.6	20.5	32.2
106	66	10.6	13.9	9.9	6.1	7.7	12.3	13.5	10.9	14.3
451	198	49.9	55.1	46.2	58.0	49.1	47.5	50.7	47.0	43.7
796	257	68.8	68.0	62.6	68.9	58.7	58.2	60.8	83.0	56.7
86	38	9.1	7.7	7.0	7.7	10.4	8.4	12.1	9.0	8.4
378	220	37.9	32.1	35.2	30.2	34.6	28.0	46.1	39.4	48.5
232	106	26.5	23.9	27.8	37.3	20.8	18.4	28.1	24.2	23.4
597	423	79.7	81.9	120.7	66.2	72.9	66.7	106.6	62.3	93.3
412	183	39.1	46.0	47.7	35.4	29.7	40.6	37.7	43.0	40.4
9,038	4,453	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
52	63	10.0	9.9	13.4	8.2	8.3	6.9	16.9	5.8	14.1
5	1	1.9	1.5	12.4	0.7	0.7	2.0	3.9	0.5	0.2
		*						0.2		
12	11	4.1	3.0	4.1	6.1	9.0	4.9	3.4	1.3	2.5
8	11	2.4	1.5	5.1	0.6	1.5	0.8	7.4	0.9	2.5
28	31	3.2	7.4	9.8	8.1	15.5	10.9	9.7	3.1	7.0
54	18	7.1	7.0	4.6	12.4	10.3	1.2	6.1	6.0	4.0
27	17	3.7	4.5	7.2	1.4	2.6	3.2	6.7	3.0	3.8
32	18	3.5	4.0	3.1	3.3	3.1	3.2	3.8	3.5	4.0
1,373	623	120.6	96.3	97.8	112.1	97.2	98.3	112.3	151.9	139.9
202	106	21.1	15.9	14.9	21.3	19.4	19.8	18.5	22.3	24.3
703	281	71.6	78.0	57.1	82.4	71.2	75.2	57.5	77.8	63.1
361	195	42.4	45.7	51.0	41.4	46.8	42.1	38.7	40.3	43.8
79	55	8.8	7.4	10.3	7.9	7.2	6.9	9.3	8.7	12.3
740	449	86.3	126.1	86.5	60.4	83.5	121.0	86.5	81.9	100.8
1,406	610	170.4	164.8	180.1	203.0	198.2	199.8	131.0	165.5	137.0
544	261	71.3	74.0	69.5	82.0	84.8	63.9	77.5	60.2	58.6
191	78	20.9	21.4	17.5	23.2	23.6	20.6	19.7	21.1	17.5
212	194	23.7	11.4	14.4	13.5	16.6	23.9	33.3	23.5	43.6
84	48	9.4	6.0	11.3	6.2	7.4	13.0	12.6	9.3	10.8
452	189	51.5	48.7	52.5	58.2	46.3	57.8	54.4	50.0	42.4
665	264	65.2	55.1	47.4	68.0	63.4	59.5	66.4	73.6	59.3
78	44	9.2	7.4	9.8	8.1	9.8	10.9	9.8	8.6	9.9
374	182	38.7	37.7	31.9	33.9	40.0	32.8	42.8	41.4	40.9
194	92	24.3	22.8	18.5	33.6	27.1	16.2	21.1	21.5	20.7
631	432	81.9	86.4	116.8	68.6	70.4	67.6	106.0	69.8	97.0
438	178	41.8	57.1	53.0	32.4	36.1	37.6	41.5	48.5	40.0

From the proportions per 1,000 total deaths shown for minor geographic divisions it appears that the relatively high proportions for typhoid fever noted for northern and central California both years were practically confined to the interior counties. The proportions for typhoid fever were relatively high each year for the interior counties of both northern and central California and for the counties of southern California other than Los Angeles, as well as for the bay counties other than San Francisco in 1915 alone. As compared with state averages of 7.1 and 10.0 in 1915 and 1914, respectively, the proportions per 1,000 total deaths were no less than 17.4 and 13.4 for the interior counties of northern California; 11.4 and 16.9 for the interior counties of central California; 7.3 and 14.1 for southern California except Los Angeles; and 7.9 for the bay counties except San Francisco in 1915 only.

The proportion for diphtheria and croup was above the state average of 7.9 in 1915 and 7.1 in 1914 only for San Francisco in both years, 15.7 and 12.4, respectively, but was notably high each year also for the adjacent other bay counties, 7.4 and 10.3.

The proportions for whooping cough were above the state averages of 3.2 and 8.2 for the bay counties other than San Francisco, 4.7 and 15.5; for the coast counties of central California, 3.5 and 10.9; for the interior counties of northern California, 6.0 and 9.8; and also for the coast counties of northern California, 3.8, in 1915 only, as well as for the interior counties of central California, 9.7, in 1914 alone.

The proportion for measles was above the general average of 3.4 in 1915 for the coast counties of central California, 7.3; the coast counties of northern California, 6.7; and the interior counties of northern California, 5.5. The proportion was above the average of 4.1 for 1914 for the bay counties except San Francisco, 9.0; the metropolis itself, 6.1; and the coast counties of central California, 4.9.

The coast counties of northern California have very high proportions for diseases of the nervous system other than meningitis, 114.0 and 126.1 in 1915 and 1914 against state averages of only 80.7 and 86.3. This is accounted for by the fact that many of the deaths reported for this geographic division occurred at the Mendocino and Napa state hospitals. The proportions for diseases of the nervous system are also quite high for the coast counties of central California, 119.5 and 121.0, and for the counties south of Tehachapi except Los Angeles, 97.1 and 100.8, the former division including the Agnews State Hospital and the latter the Southern California State Hospital.

The interior counties of northern California show proportions that are very high indeed, 120.7 and 116.8 against state averages of only 79.7 and 81.9, for miscellaneous deaths from violence, as drowning, railroad injuries, other accidents, etc.

The proportions for diseases of the circulatory system (185.8 and 170.4 for the state in 1915 and 1914) are particularly high for San Francisco (211.6 and 203.0), for the other bay counties (208.7 and 198.2), for the adjoining coast counties of central California (219.1 and 199.8) and also for the coast counties of northern California, 210.7, in 1915 only and the interior counties of northern California, 180.1, in 1914 alone.

The proportions for pneumonia and broncho-pneumonia (78.5 for the state in 1915 and 71.3 in 1914) were especially high both years for San Francisco (88.7 and 82.0) and the other bay counties (101.1 and 84.8). The proportion for pneumonia was also notably great in 1915 for the coast (80.0) and interior (96.4) counties of northern California and in 1914 for the coast counties of northern California (74.0) and the interior counties of central California (77.5).

The proportion of total deaths at all ages for diarrhea and enteritis among children under two years of age, 20.4 in 1915 and 23.7 in 1914, was highest each year for southern California outside Los Angeles, 32.2 and 43.6, and next for the interior counties of central California, 28.6 and 33.3.

In the city and county of San Francisco the proportions per 1,000 total deaths for cancer were as great as 80.7 in 1915 and 82.4 in 1914 against state averages of 71.1 and 71.6. Similarly, the proportions for suicide were 37.3 and 33.6 for San Francisco as compared with only 26.5 and 24.3 for the state as a whole.

The proportions for tuberculosis of the lungs, 121.8 in 1915 and 120.6 in 1914, were no less than 146.6 and 151.9 for Los Angeles and 145.8 and 139.9 for the other counties south of Tehachapi. Similarly, against state averages of 20.5 and 21.1 for tuberculosis of other organs, the proportions per 1,000 total deaths were 19.5 in 1915 and 22.3 in 1914 for Los Angeles, and 23.4 and 24.3, respectively, for the rest of southern California.

In the county of Los Angeles the proportions per 1,000 total deaths for cancer were 78.2 and 77.8 against state averages of 71.1 and 71.6 for 1915 and 1914, respectively, and for Bright's disease and nephritis were likewise 83.0 and 73.6 as compared with general averages of 68.8 and 65.2.

Urban and Rural Districts.—The table which follows has been prepared to bring out the contrast between mortality conditions in urban and rural districts, figures like those in preceding tables being given here for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as compared with the rural counties of northern and central California:

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 4.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Metropolitan Area and Rural Counties of Northern and Central California: 1915 and 1914.

Cause of death	Northern and Central California		Metropolitan area		Rural counties	
	1915	1914	1915	1914	1915	1914
Deaths						
All causes	24,994	24,965	11,985	11,526	12,909	12,589
Typhoid fever	285	261	78	95	127	106
Malarial fever	39	64	2	8	37	58
Smallpox	2	1	1		1	1
Measles	94	139	22	88	62	47
Scarlet fever	33	71	10	11	23	49
Whooping cough	99	287	42	127	48	129
Diphtheria and croup	211	196	149	123	62	68
Influenza	169	94	15	22	91	71
Plague	1		1			
Other epidemic diseases	78	82	32	37	46	45
Tuberculosis of lungs	2,685	2,533	1,275	1,223	1,410	1,310
Tuberculosis of other organs	506	491	275	258	231	228
Cancer	1,747	1,703	961	866	786	835
Other general diseases	1,647	1,682	526	501	521	531
Meningitis	177	197	73	88	104	109
Other diseases of nervous system	2,004	2,050	819	801	1,185	1,249
Diseases of circulatory system	4,767	4,391	2,318	2,316	2,449	1,975
Pneumonia and broncho-pneumonia	2,151	1,872	1,120	957	1,061	915
Other diseases of respiratory system	501	517	229	269	272	248
Diarrhea and enteritis, under 2 years	452	428	185	170	267	213
Diarrhea and enteritis, 2 years and over	245	220	80	77	105	143
Other diseases of digestive system	1,300	1,291	652	616	648	675
Bright's disease and nephritis	1,081	1,517	776	762	865	756
Childbirth	232	222	105	101	127	121
Diseases of early infancy	880	898	382	418	498	490
Suicide	697	626	369	357	328	299
Other violence	2,090	2,013	838	796	1,252	1,215
All other causes	930	954	397	390	533	564
Proportion per 1,000 Total Deaths.						
All causes	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	8.2	10.9	6.5	8.2	9.8	13.2
Malarial fever	1.6	2.7	0.2	0.7	2.9	4.5
Smallpox	0.1	*	0.1		0.1	0.1
Measles	3.8	5.4	2.7	7.2	4.8	3.8
Scarlet fever	1.3	3.0	0.8	0.9	1.8	4.8
Whooping cough	3.6	10.8	3.5	11.0	3.7	9.6
Diphtheria and croup	8.5	8.2	12.4	11.5	4.8	5.6
Influenza	4.4	3.9	1.5	1.9	7.0	5.7
Plague	*		0.1			
Other epidemic diseases	3.1	3.4	2.7	3.2	3.6	3.6
Tuberculosis of lungs	107.8	105.8	105.6	106.2	109.0	104.5
Tuberculosis of other organs	20.3	20.0	23.0	22.4	17.8	17.8
Cancer	70.2	70.8	82.0	78.0	59.2	64.2
Other general diseases	42.1	42.9	44.0	43.5	40.3	42.4
Meningitis	7.1	8.2	6.1	7.6	8.0	8.7
Other diseases of nervous system	80.5	85.3	68.4	69.6	91.6	99.7
Diseases of circulatory system	191.4	178.4	210.4	201.1	178.8	157.6
Pneumonia and broncho-pneumonia	86.4	77.9	98.6	83.1	79.7	73.0
Other diseases of respiratory system	20.1	21.5	19.1	23.4	21.0	19.8
Diarrhea and enteritis, under 2 years	18.2	20.1	15.5	14.8	20.6	26.0
Diarrhea and enteritis, 2 years and over	9.8	9.1	6.7	6.7	12.7	11.4
Other diseases of digestive system	52.2	53.7	54.5	53.5	50.1	53.9
Bright's disease and nephritis	65.5	63.1	64.9	66.2	66.1	60.2
Childbirth	9.3	9.2	8.8	8.8	9.8	9.7
Diseases of early infancy	35.2	37.3	31.9	36.3	38.5	38.3
Suicide	28.0	26.0	30.8	31.0	25.3	21.5
Other violence	83.9	83.7	70.0	69.8	96.8	97.9
All other causes	37.3	39.7	33.2	33.9	41.2	45.0

*Less than one-tenth of 1 per thousand.

There were approximately the same number of deaths each year in the metropolitan area as in all the other counties north of Tehachapi; the respective totals being 11,965 and 12,939 in 1915 and 11,516 and 12,530 in 1914. However, there are marked differences between the whole urban area and the rural districts in the distribution of deaths by principal causes.

The proportion per 1,000 total deaths for typhoid fever was only 6.5 in 1915 and 8.2 in 1914 for the metropolitan area as compared with 9.8 and 13.2 for the rural counties. Similarly, the proportions for malarial fever were merely 0.2 and 0.7 for the urban territory against 2.9 and 4.5 for the country districts. The proportions for scarlet fever were likewise only 0.8 and 0.9 for the urban territory as compared with 1.8 and 4.8 for the rural sections.

The proportions for whooping cough were 3.5 and 11.0 for the metropolitan area against 3.7 and 9.6 for the rural counties, and the proportions for measles were 2.7 and 7.2 for the former against 4.8 and 3.8 for the latter. The proportions for both whooping cough and measles were less for the urban territory than for the country districts in 1915, though greater in both instances for the urban territory than for the rural sections in 1914.

However, the proportion for diphtheria and croup was much greater in both 1915 and 1914 for the metropolitan area, 12.4 and 11.5, than for the rural territory, only 4.8 and 5.0, respectively.

The proportion of deaths from diseases of the circulatory system (heart disease, etc.) is very much higher for the urban territory than for the rural districts, the proportions per 1,000 total deaths for the former in 1915 and 1914 being as great as 210.4 and 201.1 against only 173.8 and 157.6 for the latter. The proportions for Bright's disease and nephritis, which often occur with heart disease, were also generally higher for the metropolitan area, 64.9 and 66.2, than for the rural counties, 66.1 and 60.2.

Other important cases in which the proportions per 1,000 total deaths were generally higher in both 1915 and 1914 for the urban territory than for the country districts are as follows: Cancer, 82.0 and 78.0 against 59.2 and 64.2; pneumonia and broncho-pneumonia, 93.6 and 83.1 against 79.7 and 73.0; diseases of the digestive system other than diarrhea and enteritis, 54.5 and 53.5 against 50.1 and 53.9; and suicide, 30.8 and 31.0 against 25.3 and 21.5.

On the other hand, the proportions were higher in both 1915 and 1914 for the rural counties than for the metropolitan area in the following important notable instances: Diseases of the nervous system other than meningitis, 91.6 and 99.7 as compared with 68.4 and 69.6; diarrhea and enteritis (under 2 years), 20.6 and 25.0 as compared with 15.5 and 14.8; violence other than suicide (*i. e.*, sundry accidents), 96.8 and 97.0 as compared with 70.0 and 69.3; and miscellaneous causes (including "old age"), 41.2 and 45.0 as compared with 33.2 and 33.9.

In short, there are relatively more deaths in the metropolitan area than in the rural counties north of Tehachapi from heart disease, Bright's disease, cancer, pneumonia, digestive ailments (except diarrhea), and suicide, as well as from diphtheria and croup. However, there is a relatively greater mortality in country districts than in the

urban territory from diseases of the nervous system, infantile diarrhea, accidental violence, and "old age," as well as from typhoid fever, malarial fever, and scarlet fever.

Cities and Rest of State.—A further contrast between mortality conditions in city and country districts is available for 1915 and 1914 by comparing deaths in chartered cities as a class with deaths in all the rest of the state. There were thirty-four freeholders' charter cities in 1915 and thirty-two in 1914, the two additional cities being Bakersfield with 286 deaths and Alhambra with 87. Table 5 on the following page shows for 1915 and 1914 the number of deaths from certain principal causes, as well as the proportion from each cause per 1,000 total deaths, for chartered cities as a class and for the rest of the state as a whole.

TABLE 5.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Freeholders' Charter Cities and Rest of State: 1915 and 1914.

Cause of death	California		Freeholders' charter cities		Rest of state	
	1915	1914	1915	1914	1915	1914
Deaths						
All causes	39,026	37,537	23,821	22,525	15,205	15,012
Typhoid fever	276	376	156	196	120	178
Malarial fever	45	70	9	20	36	50
Smallpox	3	1	1	1	2	—
Measles	182	153	67	108	65	50
Scarlet fever	53	90	23	29	30	61
Whooping-cough	124	306	67	165	57	141
Diphtheria and croup	310	268	228	177	82	91
Influenza	181	153	73	58	108	80
Plague	1	—	—	—	1	—
Other epidemic diseases	116	132	65	77	51	55
Tuberculosis of lungs	4,752	4,529	2,756	2,566	1,996	1,963
Tuberculosis of other organs	799	791	550	510	249	281
Cancer	2,776	2,087	1,936	1,814	840	873
Other general diseases	1,615	1,591	1,049	981	596	610
Meningitis	273	331	154	185	119	146
Other diseases of nervous system	3,151	3,239	1,785	1,788	1,366	1,451
Diseases of circulatory system	7,251	6,397	4,652	4,085	2,599	2,312
Pneumonia and broncho-pneumonia	3,063	2,677	1,893	1,616	1,170	1,061
Other diseases of respiratory system	723	786	427	476	301	310
Diarrhea and enteritis, under 2 years	795	899	408	452	392	437
Diarrhea and enteritis, 2 years and over	415	352	231	206	184	146
Other diseases of digestive system	1,949	1,932	1,308	1,264	646	668
Bright's disease and nephritis	2,684	2,446	1,688	1,558	995	858
Childbirth	353	344	229	208	127	136
Diseases of early infancy	1,478	1,454	883	891	645	563
Suicide	1,085	912	682	616	353	298
Other violence	3,110	3,076	1,639	1,555	1,471	1,521
All other causes	1,525	1,570	922	896	608	674
Proportion per 1,000 Total Deaths.						
All causes	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	7.1	10.0	6.5	8.8	7.9	11.9
Malarial fever	1.1	1.9	0.4	0.9	2.4	3.3
Smallpox	0.1	*	*	*	0.1	—
Measles	3.4	4.1	2.8	4.6	4.3	3.3
Scarlet fever	1.4	2.4	1.0	1.3	2.0	4.1
Whooping-cough	3.2	8.2	2.8	7.3	3.8	9.4
Diphtheria and croup	7.9	7.1	9.6	7.9	5.4	6.1
Influenza	4.6	3.7	3.1	2.6	7.1	5.3
Plague	*	—	—	—	0.1	—
Other epidemic diseases	3.0	3.5	2.7	3.4	3.4	3.7
Tuberculosis of lungs	121.8	120.6	115.7	118.9	131.3	130.8
Tuberculosis of other organs	20.5	21.1	23.1	22.6	16.4	18.7
Cancer	71.1	71.6	81.3	80.5	55.2	58.2
Other general diseases	42.1	42.4	44.0	43.6	39.2	40.6
Meningitis	7.0	8.8	6.5	8.2	7.8	9.7
Other diseases of nervous system	80.7	86.3	74.9	79.4	89.8	96.7
Diseases of circulatory system	185.8	170.4	195.3	181.3	170.9	154.0
Pneumonia and broncho-pneumonia	78.5	71.3	79.5	71.7	77.0	70.7
Other diseases of respiratory system	18.7	20.9	17.9	21.1	19.8	20.6
Diarrhea and enteritis, under 2 years	30.4	23.7	16.9	20.1	25.8	29.1
Diarrhea and enteritis, 2 years and over	10.6	9.4	9.7	9.2	12.1	9.7
Other diseases of digestive system	49.9	51.5	54.7	56.1	42.5	44.5
Bright's disease and nephritis	68.8	65.2	70.9	70.5	65.5	57.1
Childbirth	9.1	9.2	9.6	9.2	8.4	9.1
Diseases of early infancy	37.9	38.7	35.0	39.6	42.4	37.5
Suicide	26.5	24.3	28.6	27.4	23.2	19.7
Other violence	79.7	81.9	68.8	69.0	96.5	101.3
All other causes	39.1	41.3	33.7	39.3	39.7	44.9

*Less than one-tenth of 1 per thousand.

Of the 37,557 deaths in California in 1915, altogether 23,831, or 61.0 per cent., occurred in the thirty-four freeholders' charter cities and 15,256, or 40.0 per cent., occurred in all the rest of the state. Of the 37,557 deaths in 1914, the number within the thirty-two chartered cities was 22,525, or 60.0 per cent., and the number outside these cities was 15,012, or 40.0 per cent. Each year about three-fifths of the deaths in California occurred within chartered cities and about two-fifths outside them.

The proportion per 1,000 total deaths for typhoid fever was only 6.5 in 1915 and 8.5 in 1914 for chartered cities as a class against 7.9 and 11.9, respectively, for all the rest of the state as a whole. The proportions were also less for chartered cities than for the rest of California for malarial fever, 0.4 and 0.9 against 2.4 and 3.3; for scarlet fever, 1.0 and 1.3 against 2.0 and 4.1; and for whooping cough, 2.8 and 7.3 against 3.8 and 9.4.

Relatively more deaths occur within cities than outside them, however, from diseases of the circulatory system (heart disease, etc.). The proportions per 1,000 total deaths in 1915 and 1914, respectively, were 195.3 and 181.3 for chartered cities as compared with 170.9 and 154.0 for the rest of the state. For Bright's disease and nephritis, often reported with heart disease, the proportions were likewise much greater within chartered cities, 70.9 and 70.5, than outside them, 65.5 and 57.1.

The proportions per 1,000 total deaths were also higher in 1915 as well as 1914 for chartered cities than for the rest of California in the following important cases: Cancer, 81.3 and 80.5 against 55.2 and 58.2; pneumonia and broncho-pneumonia, 79.5 and 71.7 against 77.0 and 70.7; diseases of the digestive system other than diarrhea and enteritis, 54.7 and 56.1 against 42.5 and 44.5; suicide, 28.6 and 27.4 against 23.2 and 19.7; and diphtheria and croup, 9.6 and 7.9 against 5.4 and 6.1.

On the other hand, the proportions were higher in both 1915 and 1914 outside cities than within them in certain notable instances, as follows: Diseases of the nervous system other than meningitis, 89.8 and 96.7 as compared with 74.9 and 79.4; diarrhea and enteritis (under 2 years) 25.8 and 29.1 as compared with 16.9 and 20.1; violence other than suicide (*i. e.*, various accidental injuries), 96.5 and 101.3 as compared with 68.8 and 69.0; and miscellaneous causes (including "old age"), 39.7 and 44.9 as compared with 38.7 and 39.8.

In other words, there are relatively more deaths within chartered cities than outside them from heart disease, Bright's disease, cancer, pneumonia, digestive ailments (except diarrhea), and suicide, besides diphtheria and croup among epidemic diseases. Mortality is relatively greater outside cities than within them, however, from diseases of the nervous system (except meningitis), diarrhea and enteritis (under 2 years), accidental injuries, and "old age," as well as from typhoid fever, malarial fever, scarlet fever, and whooping cough.

Individual Counties.—Preceding figures for deaths in main and minor geographic divisions in 1915 and 1914 are supplemented by extended tables giving similar figures for the fifty-eight counties in both years. The counties are arranged in geographic order, by minor geographic divisions, but for the sake of ready reference the counties in each group are listed alphabetically. The grouping of the counties according to

geographic location facilitates the analysis of mortality conditions in any minor geographic division by immediate reference to the counties included in the group.

These tables, because of their length, are placed with other general tables toward the end of the section on deaths, but for convenience in reference the titles are given here as follows:

TABLE 34.—Deaths from certain principal causes, for counties arranged geographically: 1915 and 1914.

TABLE 35.—Proportion per 1,000 total deaths from certain principal causes, for selected counties (reporting 300 deaths) arranged geographically: 1915 and 1914.

Individual Cities.—Corresponding figures for individual chartered cities appear in Tables 31 and 32, *post*. In these tables the cities are arranged in rough geographic order to facilitate comparisons between neighboring cities or between cities in the same portion of the state.

The tables for individual chartered cities in 1915 and 1914, like similar tables for counties, appear with other general tables toward the close of the section on deaths. However, the titles of these city tables are here given as follows:

TABLE 36.—Deaths from certain principal causes, for freeholders' charter cities arranged geographically: 1915 and 1914.

TABLE 37.—Proportion per 1,000 total deaths from certain principal causes, for selected freeholders' charter cities (reporting 200 deaths) arranged geographically: 1915 and 1914.

Mortality by Months.—The following table shows for California as a whole the distribution of total deaths by month of occurrence for both 1915 and 1914 as well as the corresponding daily average number of deaths each month for the five-year period, 1911 to 1915.

TABLE 6.—Deaths Classified by Month of Occurrence, with Daily Averages, for California: 1915 and 1914.

Month of occurrence	Deaths			Daily average				General daily average: 1911 to 1915
	1915	1914	1915	1914	1913	1912	1911	
State totals	39,026	37,537	107	103	106	100	93	102
January	3,616	3,392	117	109	*134	111	*111	*116
February	3,015	3,121	108	111	113	107	100	108
March	3,441	3,295	111	106	110	110	96	107
April	3,171	3,159	106	105	108	102	90	102
May	3,276	3,080	106	99	105	98	92	100
June	3,060	3,073	102	102	103	93	87	97
July	3,016	2,913	†97	94	99	97	84	94
August	3,008	2,827	†97	†91	95	†87	†83	†91
September	2,927	2,817	98	94	†94	89	85	92
October	3,184	2,931	103	95	98	96	85	95
November	3,425	3,213	114	107	100	101	98	104
December	3,889	3,716	*125	*120	111	*114	107	115

*Maximum.

†Minimum.

From the general daily averages for the whole five years, 1911 to 1915, it appears that the average daily mortality dropped successively from the maximum of 116 for January to 108 for February, 107 for March, 102 for April, 100 for May, 97 for June, 94 for July, and 91 for August. From the minimum of 91 for August, the daily average number of deaths increased steadily to 92 for September, 95 for October, 104 for November, and 115 for December.

The respective daily averages for each year from 1911 to 1915 likewise show that mortality decreases generally in the period from January to August, while increasing regularly in the later months of September to December. The month of maximum daily mortality was January in 1911 and 1913 and December in 1912, 1914 and 1915. August was the month of minimum daily mortality in each of the five years except 1913, when the average was slightly lower for September than for August, although the average was equally low for both July and August in 1915.

The figures indicate on the whole that in California the summer season is the healthiest in respect to the small number of deaths occurring through the months of July to September.

TUBERCULOSIS IN CALIFORNIA.

The State.—Tuberculosis is the leading single cause of death in California, being the cause of about one-seventh of all deaths. Of 39,026 deaths reported to the State Bureau of Vital Statistics for 1915, altogether 5,551 were from tuberculosis, and of 37,537 deaths reported for 1914, some 5,320 were also from the "great white plague," the per cent being 14.2 each year against the average of 14.6 for the ten years last past.

For comparison it may be noted that in 1915 and 1914, respectively, the totals for all diseases of the circulatory system (heart disease, etc.) were 7,251 and 6,397; for all diseases of the respiratory system (pneumonia, etc.), were only 3,791 and 3,463; for all diseases of the nervous system were only 3,424 and 3,570; for all diseases of the digestive system were only 3,159 and 3,173; for miscellaneous violence (except suicide) were only 3,110 and 3,076; for cancer in all forms were only 2,776 and 2,687; and for Bright's disease and nephritis were only 2,684 and 2,446.

From tuberculosis of the lungs there were 4,752 deaths in 1915 as compared with 4,529 in 1914, while from tuberculosis of other organs there were 799 deaths in 1915 against 791 in 1914. The distribution of deaths from tuberculosis of the lungs and other organs was as follows for California in 1915 and 1914, respectively:

	1915.	1914.
Deaths from tuberculosis (all forms)-----	5,551	5,320
Tuberculosis of the lungs-----	4,752	4,529
Tuberculosis of other organs-----	799	791
Acute miliary tuberculosis-----	126	114
Tuberculosis meningitis-----	323	313
Abdominal tuberculosis-----	204	207
Pott's disease-----	32	38
White swellings-----	21	9
Tuberculosis of other organs-----	66	73
Disseminated tuberculosis-----	27	37

The proportion per 1,000 total deaths in 1915 was 121.8 for tuberculosis of the lungs and 20.5 for tuberculosis of other organs, or 142.3 for all forms of this disease. Of each 1,000 deaths in California in 1914, there were 120.6 from tuberculosis of the lungs and 21.1 from tuberculosis of other organs, or 141.7 from tuberculosis of all forms. For

1906 to 1915 the annual average proportion per 1,000 total deaths was 125.3 for pulmonary tuberculosis and 20.8 for other forms, or altogether 146.1 for all forms. In the ten years, the proportion per 1,000 total deaths for tuberculosis of all forms ranged as follows: 151.4 (1906), 148.1, 145.9, 150.8, 150.3, 150.4, 139.7, 139.9, 141.7, and 142.3 (1915).

For an estimated state population of 2,854,727 in 1915 the death rate per 100,000 population is 166.5 for tuberculosis of the lungs and 28.0 for tuberculosis of other organs, or altogether 194.5 for all forms of this disease. Similarly, for an estimated population of 2,763,109 for 1914, the death rate per 100,000 is 163.9 for pulmonary tuberculosis and 28.6 for other forms, or 192.5 for all kinds. For the ten years last past the annual average death rate per 100,000 population is 175.0 for pulmonary tuberculosis and 29.0 for other forms, or altogether 204.0 for tuberculosis of all forms. The death rate per 100,000 for tuberculosis of all forms together decreased generally through the ten years, 1906 to 1915, thus: 218.0 (1906), 216.8, 206.1, 202.6, 203.3, 205.5, 198.8, 202.2, 192.5, and 194.5 (1915).

In contrast with the fact that for tuberculosis of all forms the death rate per 100,000 decreased considerably from 218.0 in 1906 to 194.5 in 1915, it is worth noting that through the same period the death rate for all diseases of the circulatory system (heart disease, etc.) increased greatly as indicated by the following figures: 185.1 (1906), 205.2, 204.9, 215.3, 212.2, 221.7, 247.2, 235.1, 231.5, and 254.0 (1915).

As compared with the annual average death rate per 100,000 for 1906 to 1915 of 204.0 for various forms of tuberculosis, the corresponding death rate was 221.2 for all diseases of the circulatory system (heart disease, etc.), but only 142.3 for all diseases of the respiratory system (pneumonia, etc.), 130.7 for all diseases of the nervous system, 125.2 for all diseases of the digestive system, 116.1 for miscellaneous violence (except suicide), 85.6 for cancer in all forms, and 85.5 for Bright's disease and nephritis.

The general death rate per 1,000 population was 13.7 for 1915 and 13.6 for 1914, these rates, like those for earlier years, being swollen largely by the great mortality from tuberculosis. Figures will be presented which show that many deaths from tuberculosis in California occur among persons of short residence in the state, who came here when too far gone with the disease for the climate to effect a cure. Doubtless many other cases originating here are due in some degree to the presence of this imported infection.

Geographic Divisions.—Southern California is an especially popular resort for consumptives, and here from one-sixth to one-fifth of all deaths are due to tuberculosis. The table which appears below shows the number and per cent of deaths from tuberculosis for the several geographic divisions of the state in both 1915 and 1914, together with the annual average per cent for 1906 to 1915 as additional data.

TABLE 7.—Number and Per Cent of Deaths from Tuberculosis, for Geographic Divisions: 1915 and 1914.

Geographic Division	Deaths		Tuberculosis				Annual average per cent: 1906 to 1915
			Number		Per cent		
	1915	1914	1915	1914	1915	1914	
The State	39,738	37,527	5,551	5,329	14.2	14.2	11.6
Northern California	4,172	3,957	446	443	10.9	11.2	11.1
Coast counties	2,566	2,914	211	234	10.1	11.1	11.6
Interior counties	2,133	1,943	235	219	11.7	13.3	10.9
Central California	20,882	20,889	2,745	2,571	13.2	12.8	13.0
San Francisco	7,229	6,940	954	947	13.1	13.6	12.9
Other bay counties	4,766	4,578	506	534	12.7	11.7	12.3
Coast counties	2,570	2,472	319	292	11.8	11.8	13.3
Interior counties	6,228	6,101	886	798	14.2	13.1	13.5
Southern California	14,122	13,691	2,380	2,308	16.7	17.1	18.8
Los Angeles	9,590	9,088	1,568	1,575	16.6	17.4	18.8
Other counties	4,532	4,653	767	731	16.9	16.4	18.8
Northern and Central California	24,904	24,046	3,191	3,014	12.8	12.5	12.6
Coast counties	16,663	16,092	2,070	1,997	12.4	12.5	12.6
Interior counties	8,241	8,044	1,121	1,017	13.6	12.6	12.8
Metropolitan area	11,965	11,516	1,550	1,481	13.0	12.9	12.7
Rural counties	12,769	12,530	1,641	1,533	12.7	12.2	12.7

Table 7 shows that for southern California the per cent of total deaths from tuberculosis was 16.7 in 1915 and 17.1 in 1914 against the annual average of 18.8 for 1906 to 1915. It may be added that through the ten-year period the per cent of deaths from tuberculosis in southern California ranged as follows: 21.6 (1906), 20.1, 19.8, 19.8 again, 19.2, 19.4, 17.5, 17.0, 17.1 and 16.7 (1915). Thus between one-sixth and one-fifth of all deaths are due to tuberculosis in the territory south of Tehachapi, the proportion having decreased generally through the past ten years. The annual average per cent for 1906 to 1915 was exactly the same, 18.8, for Los Angeles alone as for all the rest of southern California.

North of Tehachapi, however, only about one-eighth of all deaths are from tuberculosis, the per cents for northern and central California together being 12.8 in 1915 and 12.5 in 1914 against the average of 12.6 for 1906 to 1915. The annual average per cent in the ten-year period just ended was 13.0 for central California and only 11.1 for northern California, the prevalence of tuberculosis decreasing toward the north. The average per cent was below the state figure, 14.6, for every main and minor geographic division north of Tehachapi, the interior counties of northern California showing the minimum average, 10.9, but the interior counties of central California showing the highest, 13.5, outside southern California.

The annual average per cent of deaths from tuberculosis was just the same (12.7) for the metropolitan area as for the rural counties south of Tehachapi. Within the metropolitan area, however, the annual average per cent was somewhat greater for San Francisco, 12.9, than for the other bay counties, 12.3.

Cities.—The following table gives the number and per cent of deaths from tuberculosis in 1915 and 1914, and in addition the annual average per cents for 1911 to 1915, for chartered cities in contrast with the rest of the state, as well as for the individual cities. The average per cents are shown for only the five years last past because figures are not available for all the cities for a whole ten-year period.

TABLE 8.—Number and Per Cent of Deaths from Tuberculosis, for Individual Cities and Rest of State: 1915 and 1914.

City	Deaths		Tuberculosis				Annual average per cent: 1911 to 1915
	1915	1914	Number		Per cent		
			1915	1914	1915	1914	
California	39,026	37,537	5,551	5,320	14.2	14.2	14.3
Freeholders' charter cities.....	23,821	22,525	3,306	3,076	13.9	13.7	14.0
Northern California:							
Eureka	228	223	23	19	10.1	8.5	11.7
Napa	116	84	8	4	6.9	4.8	10.4
Petaluma	90	80	9	9	10.0	11.3	9.0
Santa Rosa	157	129	11	5	7.0	3.9	9.0
Grass Valley	67	73	12	9	17.9	12.3	16.0
Central California:							
San Francisco	7,259	6,940	954	917	13.1	13.6	12.8
Alameda	299	290	38	26	12.7	9.0	10.0
Berkeley	498	435	40	25	8.1	5.7	7.9
Oakland	2,169	2,115	260	222	12.0	10.5	10.8
Richmond	160	142	14	12	8.8	8.5	8.3
San Rafael	92	80	9	10	9.8	12.5	12.1
Monterey	73	62	4	9	5.5	14.5	12.8
Salinas	55	58	7	7	12.7	12.1	10.6
San Luis Obispo.....	119	101	14	11	11.8	10.9	11.6
Palo Alto	30	28	1	—	3.3	—	5.1
San Jose	463	461	52	50	11.2	10.8	12.5
Santa Cruz	190	181	16	10	8.4	5.5	8.7
Watsonville	76	81	12	7	15.8	8.6	13.8
Fresno	377	430	61	42	17.0	9.8	12.2
Bakersfield	286	—	59	—	20.6	—	*20.6
Sacramento	997	1,066	144	151	14.4	14.2	14.0
Stockton	725	564	93	73	12.8	12.9	15.2
Vallejo	122	159	15	11	12.3	6.9	9.7
Modesto	145	109	14	12	9.6	11.0	110.1
Southern California:							
Los Angeles	5,853	5,644	1,010	990	17.3	17.5	17.6
Alhambra	87	—	7	—	8.0	—	*8.0
Long Beach	431	422	24	26	5.6	6.2	7.7
Pasadena	496	458	67	66	13.5	14.4	16.5
Pomona	169	144	15	19	8.9	13.2	6.1
Santa Monica	187	189	13	15	7.0	7.9	7.0
Riverside	217	219	30	40	13.8	18.3	18.7
San Bernardino	358	352	92	91	25.7	25.9	25.5
San Diego	1,003	946	150	127	15.0	13.4	15.3
Santa Barbara	232	260	25	31	10.8	11.9	13.3
Rest of State	15,206	15,012	2,245	2,244	14.8	14.9	14.8

*Per cent for single year, 1915.

†Average for three years, 1913 to 1915.

‡Average for four years, 1912 to 1915.

In the thirty-four free-borders' charter cities in 1915 the deaths from tuberculosis numbered 3,348, or 13.9 per cent, and in the thirty-two chartered cities in 1914 the deaths from this disease totaled 3,076, or 13.7 per cent. In the state outside cities the deaths from tuberculosis were 2,245, or 14.5 per cent of all, in 1915 and 2,244, or 14.9 per cent, in 1914.

For chartered cities as a class the per cent of deaths from tuberculosis was slightly greater in 1915 than 1914, 13.9 against 13.7, while for the state outside these cities the per cent was a shade less in 1915 than in 1914, 14.5 against 14.9. However, the annual average per cent of deaths from tuberculosis in 1911 to 1915 was somewhat less for chartered cities, 14.0, than for all the rest of the state, 14.8.

From the annual average per cent for 1911 to 1915 it appears that the mortality from tuberculosis was relatively greatest in the following cities: San Bernardino, 25.5; Bakersfield (1915 alone), 20.6; Riverside, 18.7; Los Angeles, 17.6; Pasadena, 16.5; Grass Valley, 16.0; San Diego, 15.3; and Stockton, 15.2.

On the other hand, the annual average per cent of deaths from tuberculosis in the five-year period was only 5.1 for Palo Alto, 6.1 for Pomona, 7.0 for Santa Monica, 7.7 for Long Beach, 7.9 for Berkeley, 8.0 for Alhambra (1915 alone), 8.3 for Richmond, 8.7 for Santa Cruz, 9.0 for both Petaluma and Santa Rosa, 9.7 for Vallejo, 10.0 for Alameda, 10.1 for Modesto (four years), 10.4 for Napa, 10.6 for Salinas, and 10.8 for Oakland.

Length of Residence—Geographic Divisions.—The heavy mortality from tuberculosis in California is due largely to the immigration of people so badly afflicted with this disease that they can not recover, even under the most favorable climatic conditions, though they may lengthen their lives somewhat by coming to this land of sunshine. For it appears that many who died of tuberculosis in California had been residents of the Golden State for only a short time. This is shown for the several geographic divisions in 1915 and 1914 in the following table, giving numbers and per cents by length of residence:

TABLE 9.—Deaths from Tuberculosis Classified by Length of Residence in California, with Per Cents, for Geographic Divisions: 1915 and 1914.

Geographic division	Total	Length of residence					Per cent				
		Under 1 year	1 to 9 years	10 years and over	Life	Un-known	Under 1 year	1 to 9 years	10 years and over	Life	Un-known
1915											
The State -----	5,551	378	1,568	1,602	1,542	461	6.8	28.2	28.9	27.8	8.8
Northern California-----	446	12	67	128	193	46	2.7	15.0	28.7	43.3	10.3
Coast counties -----	211	3	36	62	86	24	1.4	17.1	29.4	40.7	11.4
Interior counties -----	235	9	31	66	107	22	3.8	13.2	28.1	45.5	9.4
Central California -----	2,745	100	506	867	1,014	258	3.6	18.4	31.6	37.0	9.4
San Francisco -----	954	26	158	273	388	109	2.7	16.6	28.6	40.7	11.4
Other bay counties-----	596	22	110	208	229	32	3.7	18.4	34.1	38.4	5.4
Coast counties -----	309	13	49	95	139	13	4.2	15.9	30.7	45.0	4.2
Interior counties -----	886	39	189	296	258	104	4.4	21.3	33.4	29.1	11.8
Southern California -----	2,360	266	995	607	335	157	11.3	42.2	25.7	14.2	6.6
Los Angeles -----	1,593	168	718	416	188	103	10.5	45.1	26.1	11.8	6.5
Other counties -----	767	98	277	191	147	54	12.8	36.1	24.9	19.2	7.0
Northern and Central California -----	3,191	112	573	995	1,207	304	3.5	18.0	31.2	37.8	9.5
Coast counties -----	2,070	64	353	633	842	178	3.1	17.0	30.6	40.7	8.6
Interior counties -----	1,121	48	220	362	365	126	4.3	19.6	32.3	32.6	11.2
Metropolitan area -----	1,550	48	268	476	617	141	3.1	17.3	30.7	39.8	9.1
Rural counties -----	1,641	64	305	519	590	163	3.9	18.6	31.6	36.0	9.9
1914											
The State -----	5,320	427	1,500	1,544	1,435	414	8.0	28.2	29.0	27.0	7.8
Northern California -----	443	26	72	185	172	38	5.9	16.2	30.5	38.8	8.6
Coast counties -----	224	8	31	68	98	19	3.6	13.8	30.4	43.7	8.5
Interior counties -----	219	18	41	67	74	19	8.2	18.7	30.6	33.8	8.7
Central California -----	2,571	93	478	878	912	210	3.6	18.6	34.1	35.5	8.2
San Francisco -----	947	31	154	320	371	71	3.3	16.2	33.8	39.2	7.5
Other bay counties-----	534	13	101	189	206	25	2.4	18.9	35.4	38.6	4.7
Coast counties -----	292	8	56	85	132	11	2.7	19.2	29.1	45.2	3.8
Interior counties -----	798	41	167	284	203	103	5.2	20.9	35.6	25.4	12.9
Southern California -----	2,306	308	950	531	351	166	13.4	41.2	23.0	15.2	7.2
Los Angeles -----	1,575	204	676	368	222	105	12.9	42.9	23.4	14.1	6.7
Other counties -----	731	104	274	163	129	61	14.2	37.5	22.3	17.7	8.3
Northern and Central California -----	3,014	119	550	1,013	1,064	248	3.9	18.3	33.6	36.0	8.2
Coast counties -----	1,997	60	342	602	807	126	3.0	17.1	33.2	40.4	6.3
Interior counties -----	1,017	59	208	351	277	122	5.8	20.5	34.5	27.2	12.0
Metropolitan area -----	1,481	44	255	509	577	96	3.0	17.2	34.4	38.9	6.5
Rural counties -----	1,533	75	295	504	507	152	4.9	19.2	32.9	33.1	9.9

Analysis of the per cents in Table 9, for 1915 and 1914, is facilitated by the annual averages for 1906 to 1915 presented in the following tabular statement for selected geographic divisions:

Geographic division	Annual average per cent of deaths from tuberculosis: 1906 to 1915				
	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
The State	9.2	24.6	26.0	28.7	11.5
Northern and Central California.....	3.7	14.7	29.9	38.1	13.6
Metropolitan area	3.1	13.5	28.7	40.4	14.3
San Francisco	3.0	11.8	26.5	40.4	18.3
Other bay counties.....	3.3	16.1	32.1	40.6	7.9
Rural counties	4.2	15.9	30.9	36.0	13.0
Southern California	17.0	38.5	20.5	15.4	8.6
Los Angeles	16.7	40.0	20.6	13.6	9.1
Other counties	17.5	35.5	20.4	19.1	7.5

It appears from Table 9 and the tabular statement presented herewith that the per cent of tuberculosis victims in California who were natives of the state, having been here for life, was only 27.8 in 1915 and 27.0 in 1914, against the average of 28.7 for 1906 to 1915. The per cents for those born elsewhere who were residents of ten years standing were 28.9 and 29.0 in 1915 and 1914 against the average of 26.0, while the per cent for those who had lived in California only from 1 to 9 years was 28.2 each of the last two years against the average of 24.6 for the ten-year period. The per cent of all deaths from tuberculosis occurring among persons who had been in the state less than a year was 6.8 in 1915 and 8.0 in 1914, as compared with the average of 9.2 for 1906 to 1915. The length of residence was unknown for 8.3 per cent of the tuberculosis victims in 1915 and for 7.8 per cent in 1914, against the annual average of 11.5 for the whole ten years last past.

Reference to the annual average per cents for 1906 to 1915 in the preceding tabular statement shows that the per cent of tuberculosis victims who were natives of the state was no less than 38.1 for northern and central California against merely 15.4 for the territory south of Tehachapi. The average per cent of tuberculosis victims born in the state was 40.4 for the metropolitan area as compared with 36.0 for the rural counties north of Tehachapi, being 40.4 for San Francisco alone and 40.6 for the group of other bay counties.

The average per cent of deaths from tuberculosis among residents of ten years' standing was 29.9 for the territory north of Tehachapi against only 20.5 for that to the south. The average per cent was 28.7 for the metropolitan area against 30.9 for the rural counties of northern and central California, and was 26.5 for the metropolis proper against 32.1 for the suburban counties.

In 1906 to 1915, by the annual averages, altogether 33.8 per cent of the deaths from tuberculosis in California as a whole occurred among residents of less than ten years standing, 24.6 per cent having lived here from 1 to 9 years and 9.2 per cent under 1 year.

The average per cent for residents of less than ten years standing is above the state average, 33.8, only for southern California, 55.5, the per cent being 56.7 for Los Angeles and 53.0 for the other counties

south of Tehachapi. On the other hand, the corresponding average per cent was only 18.4 for the territory north of Tehachapi, being only 16.6 for the metropolitan area against 20.1 for the rural counties and merely 14.8 for San Francisco against 19.4 for the suburban counties.

It seems, then, that in southern California, where from one-sixth to one-fifth of all deaths are from tuberculosis, considerably more than half of the tuberculosis victims thus succumbing had lived in the state less than ten years at the time of death. In fact, over one-sixth of all tubercular decedents south of Tehachapi had resided in California less than a year, the annual average per cent in 1906 to 1915 being 16.7 for Los Angeles and 17.5 for the other counties, or 17.0 for southern California as a whole.

Length of Residence (Cities).—Preceding figures on length of residence for geographic divisions in 1915 and 1914 are supplemented by those in the following table for the several chartered cities in contrast with the rest of the state, the cities being arranged according to geographic location. The absolute figures are shown for each of the thirty-four chartered cities in 1915 and the thirty-two in 1914, but the per cents have been calculated only for those cities reporting at least 25 deaths from tuberculosis in each year, respectively.

TABLE 10.—Deaths from Tuberculosis Classified by Length of Residence in California, with Per Cents, for Individual Cities and Rest of State: 1915 and 1914.

City	Length of residence													
	Total		1915							1914				
	1915	1914	Under 1 year	1 to 9 years	10 years and over	Life	Unknown	Under 1 year	1 to 9 years	10 years and over	Life	Unknown		
Deaths.														
California	5,551	5,320	378	1,568	1,002	1,542	461	427	1,500	1,544	1,435	414		
Freeholders' charter cities	3,306	3,076	200	944	901	900	253	239	879	927	899	202		
Northern California:														
Eureka	23	19	1	2	11	9		1	1	7	9	1		
Napa	8	4		3	1	2	2			1	2	1		
Petaluma	9	9	1	2	1	5		1	2		5	1		
Santa Rosa	11	5	1	2	2	4	2			1	4			
Grass Valley	12	9		1	7	4		2		3	4			
Central California:														
San Francisco	954	947	26	158	273	388	100	31	154	320	371	71		
Alameda	38	25	1	4	16	15	2	1	3	13	8	1		
Berkeley	40	25	7	3	15	15		2	3	13	7			
Oakland	200	222	6	55	90	102	7	8	35	68	102	9		
Richmond	14	12		6	6	2			5	5	2			
San Rafael	9	10		1	3	4	1	1	1	3	4	1		
Monterey	4	9			1	2	1		3	1	5			
Salinas	7	7			4	3			2	1	4			
San Luis Obispo	14	11			5	9			3	3	4	1		
Palo Alto	1			1										
San Jose	52	50	1	6	18	24	3	1	10	20	19			
Santa Cruz	16	10	1	2	9	4			1	3	6			
Watsonville	12	7	1	1	4	6			3	1	3			
Fresno	64	42	4	8	27	22	3	6	12	12	9	3		
Bakersfield	59	*	2	15	11	15	16	*	*	*	*	*		
Sacramento	144	151	2	29	48	53	12	12	22	67	30	11		
Stockton	93	73	5	11	29	27	21	1	15	27	20	10		
Vallejo	15	11	1	2	2	9	1	1	1	4	4	1		
Modesto	14	12	3	5	4	1	1		2	4	4	2		
Southern California:														
Los Angeles	1,010	990	92	456	296	116	50	107	429	261	132	61		
Alhambra	7	*		4	3			*	*	*	*	*		
Long Beach	24	26	2	13	7	1	1	5	15	4	2			
Pasadena	67	66	9	32	17	8	1	18	34	13	5	1		
Pomona	15	19	2	9		4		4	6	3	6			
Santa Monica	13	15	1	5	2	1	4		2	1	4	8		
Riverside	30	40	3	10	13	3	1	3	22	4	7	4		
San Bernardino	92	91	15	25	21	19	12	12	30	27	9	13		
San Diego	150	127	21	67	36	23	3	23	53	31	18	2		
Santa Barbara	25	31	1	6	9	9		4	10	6	11			
Rest of State	2,243	2,244	169	624	611	633	208	188	621	617	606	212		

*Not organized as charter city in 1914.

TABLE 10.—Deaths from Tuberculosis Classified by Length of Residence in California, with Per Cents, for Individual Cities and Rest of State: 1915 and 1914—Concluded.

City	Total		Length of residence									
			1915					1914				
	1915	1914	Under 1 year	1 to 9 years	10 years and over	Life	Unknown	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
Per cents.												
California	100.0	100.0	6.8	28.2	28.9	27.8	8.3	8.0	28.2	29.0	27.0	7.8
Freeholders' charter cities	100.0	100.0	6.3	28.5	30.0	27.5	7.7	7.8	28.6	30.1	26.9	6.6
Northern and Central California:												
San Francisco	100.0	100.0	2.7	16.6	28.6	40.7	11.4	3.3	16.2	33.8	39.2	7.5
Alameda	100.0	100.0	2.6	10.5	42.1	39.5	5.3	3.9	11.5	50.0	30.8	3.8
Berkeley	100.0	100.0	17.5	7.5	37.5	37.5		8.0	12.0	52.0	28.0	
Oakland	100.0	100.0	2.3	21.2	34.6	39.2	2.7	3.6	15.8	30.6	45.9	4.1
San Jose	100.0	100.0	1.9	11.5	34.6	46.2	5.8	2.0	20.0	40.0	38.0	
Fresno	100.0	100.0	6.2	12.5	42.2	34.4	4.7	14.3	28.6	28.6	21.4	7.1
Bakersfield	100.0	*	3.4	25.4	18.7	25.4	27.1	*	*	*	*	*
Sacramento	100.0	100.0	1.4	20.2	33.3	36.8	8.3	7.9	14.6	44.4	25.8	7.3
Stockton	100.0	100.0	5.4	11.8	31.2	29.0	22.6	1.4	20.5	37.0	27.4	18.7
Southern California:												
Los Angeles	100.0	100.0	9.1	45.1	29.3	11.5	5.0	10.8	43.3	26.4	13.3	6.2
Long Beach	†	100.0	†	†	†	†	†	19.2	57.7	15.4	7.7	
Pasadena	100.0	100.0	13.4	47.8	25.4	11.9	1.5	19.7	51.5	19.7	7.6	1.5
Riverside	100.0	100.0	10.0	33.4	43.3	10.0	3.3	7.5	56.0	10.0	17.5	10.0
San Bernardino	100.0	100.0	16.3	27.2	22.8	20.7	13.0	13.2	32.9	29.7	9.9	14.3
San Diego	100.0	100.0	14.0	44.7	24.0	15.3	2.0	18.1	41.7	24.4	14.2	1.6
Santa Barbara	100.0	100.0	4.0	24.0	36.0	36.0		12.9	32.3	19.3	35.5	
Rest of State	100.0	100.0	7.5	27.8	27.2	28.2	9.3	8.4	27.7	27.5	27.0	9.4

*Not organized as charter city in 1914.

†Per cents not shown for totals less than 25.

As before, analysis of the per cents in this table for 1915 and 1914 is aided by the annual averages for 1911 to 1915 presented herewith for chartered cities in contrast with the rest of the state as well as for selected individual cities, *i. e.*, all having at least 25 deaths from tuberculosis in each of the five years last past, the averages for cities being limited to a five-year period because of the lack of figures for as long as ten years.

Table Showing Distribution of Tuberculosis Deaths According to Length of Residence in California.

City	Annual average per cent of deaths from tuberculosis: 1911 to 1915				
	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
California	8.8	26.7	26.7	27.9	9.9
Freeholders' charter cities	8.7	27.6	27.4	27.1	9.2
Rest of State	8.9	25.5	25.7	29.0	10.9
Selected cities:					
Northern and Central California.					
San Francisco	3.3	14.3	28.6	39.8	14.0
Alameda	3.5	17.8	38.1	38.2	2.4
Berkeley	9.5	16.5	33.7	39.6	0.7
Oakland	3.0	18.9	30.2	42.8	5.1
San Jose	3.5	14.0	33.0	46.7	2.8
Fresno	9.0	22.9	31.3	29.7	7.1
Sacramento	4.7	16.5	26.8	31.6	18.4
Stockton	2.3	16.2	38.4	29.8	13.3
Southern California.					
Los Angeles	13.3	42.4	24.7	12.2	7.4
Pasadena	18.1	46.3	25.4	9.4	0.8
Riverside	15.2	39.8	25.2	15.2	4.6
San Bernardino	15.3	37.1	20.9	10.5	16.2
San Diego	20.2	38.7	25.3	12.8	3.0
Santa Barbara	6.0	24.8	23.7	42.7	2.8

It appears from this tabular statement that the distribution of tuberculosis deaths according to length of residence in California is not far from the same for chartered cities as for all the rest of the state. The annual average per cent in 1911 to 1915 for native Californians was 27.1 within cities against 29.0 outside them. For residents of ten years standing and over the average per cent was 27.4 for chartered cities against 25.7 for the rest of the state, while for residents of less than ten years standing the per cent was altogether 36.3 for cities as a class against 34.4 for the rural territory as a whole. For tuberculosis decedents who had lived in California less than a year the average per cent was almost exactly the same within cities, 8.7, as outside them, 8.9. The average per cent of unknown length of residence was 9.2 for chartered cities as compared with 10.9 for the rest of the state.

Several of the cities in southern California show a large proportion of deaths from tuberculosis among persons who had lived in California a comparatively short time. For residents of less than ten years standing the annual average per cent in 1911 to 1915 totaled as much as 64.4 for Pasadena, 58.9 for San Diego, 55.7 for Los Angeles, 55.0 for Riverside, and 52.4 for San Bernardino.

Moreover, the annual average per cent of tuberculosis victims who had lived in California less than a year was very high in cities of southern California, as follows: San Diego, 20.2; Pasadena, 18.1; San Bernardino, 15.3; Riverside, 15.2; and Los Angeles, 13.3.

Southern California.—In fact, many who died of tuberculosis in southern California cities or in the whole territory south of Tehachapi had lived in the state only a few months. This appears clearly from the following table giving numbers and per cents by length of residence in months for southern California in 1915 and 1914:

TABLE 11.—Deaths from Tuberculosis Classified by Length of Residence (in Months), with Per Cents, for Southern California: 1915 and 1914.

Geographic division	Length of residence									
	Total under 1 year		Under 1 month		1 to 2 months		3 to 5 months		6 to 11 months	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
Numbers.										
Southern California	266	308	34	34	71	77	70	88	91	109
Los Angeles	168	204	22	20	47	48	44	61	55	75
Other counties	98	104	12	14	24	29	26	27	36	34
Per cents.										
Southern California	11.3	13.4	1.4	1.5	3.0	3.4	3.0	3.8	3.9	4.7
Los Angeles	10.5	12.0	1.4	1.3	2.9	3.0	2.8	3.9	3.4	4.7
Other counties	12.8	14.2	1.6	1.9	3.1	4.0	3.4	3.7	4.7	4.6

Table 11 for 1915 and 1914 may be supplemented by the annual average per cents for 1906 to 1915 presented in the following tabular statement:

Geographic division	Annual average per cent of deaths from tuberculosis: 1906 to 1915				
	Total under 1 year	Under 1 month	1 to 2 months	3 to 5 months	6 to 11 months
Southern California	17.0	2.0	4.4	4.8	5.8
Los Angeles	16.7	1.9	4.2	4.7	5.9
Other counties	17.5	2.2	4.9	4.9	5.5

From the supplementary annual average per cents for 1906 to 1915 it appears that of all who died of tuberculosis in southern California 2.0 per cent had been in the state less than a month, altogether 6.4 per cent less than three months, and altogether 11.2 per cent less than six months. Of all the tuberculosis victims in Los Angeles, an average of 10.8 per cent had resided in California less than half a year, the corresponding figure being 12.0 for the other counties south of Tehachapi.

Length of Residence (All Causes).—The following table indicates the extent to which tuberculosis is the cause of death among total decedents from all causes classified by length of residence in California, figures being presented for both 1915 and 1914 for the entire territory north of Tehachapi in contrast with southern California to the south.

TABLE 12.—Number and Per Cent of Deaths from Tuberculosis Among Decedents Classified by Length of Residence in California, for Territory North and South of Tehachapi: 1915 and 1914.

Length of residence	Deaths		Tuberculosis			
	1915	1914	Number		Per cent	
			1915	1914	1915	1914
California	39,026	37,537	5,551	5,320	14.2	14.2
Under 1 year.....	1,677	1,801	378	427	22.5	23.7
1 to 9 years.....	7,523	7,565	1,568	1,500	20.8	19.8
10 years and over.....	16,482	14,780	1,602	1,544	9.7	10.4
Life.....	9,906	10,073	1,542	1,485	15.6	14.2
Unknown.....	3,438	3,318	461	414	13.4	12.5
North of Tehachapi.....	24,904	21,046	3,191	3,014	12.8	12.5
Under 1 year.....	610	672	112	119	18.4	17.7
1 to 9 years.....	3,023	3,070	573	550	19.0	17.9
10 years and over.....	11,675	10,710	995	1,013	8.5	9.5
Life.....	7,280	7,353	1,207	1,084	16.6	14.7
Unknown.....	2,316	2,241	304	248	13.1	11.1
South of Tehachapi.....	14,122	13,491	2,360	2,306	16.7	17.1
Under 1 year.....	1,067	1,129	266	308	24.9	27.3
1 to 9 years.....	4,500	4,485	985	950	22.1	21.1
10 years and over.....	4,807	4,070	607	531	12.6	13.0
Life.....	2,626	2,720	335	351	12.8	12.9
Unknown.....	1,122	1,077	157	166	11.0	15.4

This table shows for the state as a whole, where the per cent of total deaths due to tuberculosis was 14.2 in both 1915 and 1914, that among decedents with a residence of less than a year the per cent for tuberculosis was 22.5 in 1915 and 23.7 in 1914 and that among decedents who had been in the state from one to nine years the per cent for tuberculosis was 20.8 in the last year covered and 19.8 in the year before. Hence, in California as a whole, the proportion of deaths from tuberculosis was nearly one-fourth among persons who had resided here under one year and about one-fifth among those who had lived here only one to nine years.

For the territory south of Tehachapi, with tuberculosis especially prevalent in the per cents of 16.7 and 17.1 for 1915 and 1914, respectively, the deaths from tuberculosis were as great as 24.9 and 27.3 per cent among decedents whose residence was under a year and 22.1 and 21.1 per cent in 1915 and 1914, respectively, among those who had lived in the state from one to nine years. Thus, in the territory south of Tehachapi, where tuberculosis prevails particularly, the proportion of all deaths from this one cause was fully one-fourth among decedents who had lived in California less than a year and over one-fifth among those with only one to nine years for their length of residence in this state.

Month of Death.—The following table gives the number and per cent of deaths occurring each month from tuberculosis for California as a whole in both 1915 and 1914, together with the corresponding per cents for 1911 to 1913 and annual average per cents for the five-year period, 1911 to 1915:

TABLE 13.—Number and Per Cent of Deaths Occurring Each Month from Tuberculosis, for California: 1915 and 1914.

Month	Deaths		Tuberculosis				Corresponding per cent			Annual average per cent: 1911 to 1915.
	1915	1914	Number		Per cent		1913	1912	1911	
			1915	1914	1915	1914				
State totals -----	39,026	37,537	5,551	5,320	14.2	14.2	14.0	14.0	15.0	14.3
January -----	3,616	3,392	541	457	15.0	13.5	12.7	13.8	15.0	14.0
February -----	3,015	3,121	438	531	14.5	17.0	14.8	15.8	14.7	15.4
March -----	3,441	3,295	588	522	17.1	15.8	15.6	14.7	17.2	16.1
April -----	3,171	3,159	491	490	15.5	15.5	15.3	15.6	16.9	15.8
May -----	3,276	3,080	514	467	15.7	15.2	13.7	16.3	17.9	15.8
June -----	3,080	3,073	443	467	14.5	15.2	14.8	13.3	15.2	14.6
July -----	3,016	2,913	429	402	14.2	13.8	13.5	12.9	15.4	14.0
August -----	3,006	2,927	392	319	13.0	12.3	12.8	13.8	14.0	13.2
September -----	2,927	2,517	398	369	13.6	13.1	14.4	11.9	14.9	13.6
October -----	3,184	2,981	405	382	12.7	13.0	14.3	11.6	12.8	12.9
November -----	3,425	3,213	423	391	12.4	12.2	13.6	13.5	12.6	12.9
December -----	3,889	3,716	489	498	12.6	13.3	12.9	13.9	13.6	13.3

It appears from Table 13 that the per cent of deaths from tuberculosis was highest for March (17.1) in 1915, for February (17.0) in 1914, for March (15.6) in 1913, and for May (16.3 and 17.9) in both 1912 and 1911. From the annual average per cents for the five years, 1911 to 1915, it seems that the period of greatest mortality from tuberculosis extends over the months of February, March, April and May, while the time when deaths from this disease are relatively least numerous covers generally the months of August, September, October, and November. The high mortality from tuberculosis in California through the spring season may be ascribed in part to deaths occurring at this time among consumptives who came from the East in the autumn or winter only to succumb finally to their dread malady after living in this mild climate only a few months.

The statistics presented give only a minimum statement of the extent to which the general death rate of California is swollen by the deaths of persons who were stricken with tuberculosis elsewhere, and who merely came here in the hope of recovering, or with the expectation of lengthening their lives somewhat in the glorious climate of the Golden State. The figures cover only the deaths that occur among these recent residents, in many cases very soon after their arrival in this land of sunshine. No data are available to tell what proportion of deaths from tuberculosis among native Californians and old-time residents are due in some degree to imported infection by the presence here of sick people from other places. It is quite evident, however, that the death rate of California is swollen somewhat by the unhealthfulness, not of this state, but of other states, being increased, in fact, by the wide fame of California as a curative health resort. For the leading single cause of death the state is one which finds most of its victims among newcomers seeking restored health and finding longer, happier life in the balmy atmosphere of California. People come to California to save or lengthen lives surely doomed elsewhere.

DEATHS BY SEX, RACE, NATIVITY AND AGE PERIODS.

Sex.—The proportion of the sexes among decedents is given in the following table for the several geographic divisions in 1915 and 1914, both numbers and per cents being shown:

TABLE 14.—Deaths Classified by Sex, with Per Cents, for Geographic Divisions: 1915 and 1914.

Geographic division	Deaths						Per cent male		Per cent female	
	Total		Male		Female		1915	1914	1915	1914
	1915	1914	1915	1914	1915	1914				
The State	39,026	37,537	23,871	23,038	15,155	14,499	61.2	61.4	38.8	38.6
Northern California	4,101	3,957	2,746	2,604	1,355	1,353	67.0	65.8	33.0	34.2
Coast counties	2,088	2,014	1,380	1,329	708	685	66.1	66.0	33.9	34.0
Interior counties	2,013	1,943	1,366	1,275	647	668	67.9	65.6	32.1	34.4
Central California	20,803	20,069	12,838	12,476	7,965	7,613	61.7	62.1	38.3	37.9
San Francisco	7,259	6,940	4,496	4,380	2,761	2,560	62.0	63.1	38.0	36.9
Other bay counties	4,706	4,567	2,678	2,636	2,028	1,940	56.9	57.6	43.1	42.4
Coast counties	2,610	2,472	1,570	1,489	1,040	963	60.2	60.3	39.8	39.8
Interior counties	6,228	6,101	4,002	3,971	2,136	2,130	63.7	65.1	34.3	34.9
Southern California	14,122	13,491	8,287	7,958	5,835	5,533	58.7	59.0	41.3	41.0
Los Angeles	9,590	9,068	5,543	5,206	4,047	3,882	57.8	57.6	42.2	42.4
Other counties	4,582	4,433	2,744	2,752	1,788	1,701	60.5	61.8	39.5	38.2
Northern and Central California	24,904	24,046	15,584	15,080	9,320	8,966	62.6	62.7	37.4	37.3
Coast counties	16,663	16,002	10,126	9,884	6,537	6,168	60.8	61.5	39.2	38.5
Interior counties	8,241	8,044	5,458	5,246	2,783	2,798	66.2	65.2	33.8	34.6
Metropolitan area	11,965	11,516	7,176	7,016	4,789	4,500	60.0	60.9	40.0	39.1
Rural counties	12,939	12,530	8,408	8,061	4,531	4,466	65.0	64.4	35.0	35.6

Table 14 shows that of 39,026 persons who died in California in 1915, altogether 23,871 or 61.2 per cent were male, and 15,155 or 38.8 per cent were female. Similarly, among the 37,537 decedents in 1914, the males were 23,038 or 61.4 per cent; and the females were 14,499 or 38.6 per cent.

For 1906 to 1915, the annual average per cent male was 62.0 and the per cent female was 38.0. Through the ten years the per cent male ranged as follows: 62.0 (1906), 63.2, 62.2, 62.4, 62.3, 62.0, 61.7, 61.7 again, 61.4, and 61.2 (1915). The proportion of males among decedents has thus decreased somewhat since 1906, especially in the most recent years.

In both 1915 and 1914 the per cent male was highest for northern California, and next for central California, the proportion of males being considerably greater each year for northern and central California, separately or together, than for the territory south of Tehachapi.

The per cents male were highest in general among minor geographic divisions for the interior counties of northern California, the coast counties of northern California, and the interior counties of central California, in the order in which named. The per cent was lowest in 1915 for the bay counties other than San Francisco, and next for Los

Angeles, but in 1914 the minimum per cent was exactly the same for each of the two minor geographic divisions just mentioned.

The per cents male were much less for the metropolitan area than for the rural counties north of Tehachapi, but were much greater for San Francisco than for the suburban counties, the latter group showing minimum per cents male in each of the last two years.

Sex and Cause of Death.—The following table gives, for California as a whole in both 1915 and 1914, the deaths from certain principal causes classified by sex, with the per cents male and female:

TABLE 15.—Deaths from Certain Principal Causes Classified by Sex, with Per Cents, for California: 1915 and 1914.

Cause of death	Total			Deaths			Female			Per cent male			Per cent female		
	Total			Male			Female			Per cent male			Per cent female		
	1915	1914	1915	1915	1914	1915	1915	1914	1915	1915	1914	1915	1915	1914	1915
All causes	39,026	37,537	23,871	23,038	15,155	14,499	61.2	61.4	38.8	38.6	38.6	38.8	38.8	38.6	38.6
Typhoid fever	276	376	192	258	84	118	69.6	68.6	30.4	31.4	31.4	30.4	30.4	31.4	31.4
Malarial fever	45	70	29	41	16	29	61.4	58.6	38.6	35.6	41.4	35.6	35.6	41.4	41.4
Smallpox	8	1	1		2	1	33.3		66.7	100.0		66.7	100.0		100.0
Measles	132	153	72	77	60	76	54.5	50.3	45.5	49.7	49.7	45.5	49.7	49.7	49.7
Scarlet fever	53	90	27	54	26	86	50.9	60.0	49.1	40.0	40.0	49.1	40.0	40.0	40.0
Whooping-cough	124	306	48	144	76	162	38.7	47.1	61.3	52.9	52.9	61.3	52.9	52.9	52.9
Diphtheria and croup	310	268	151	187	159	131	48.7	51.1	51.3	48.9	48.9	51.3	48.9	48.9	48.9
Influenza	181	138	96	71	85	67	58.0	51.4	47.0	48.0	48.0	47.0	48.0	48.0	48.0
Plague	1		1				100.0								
Other epidemic diseases	116	132	72	76	41	56	62.1	57.6	37.9	42.4	42.4	37.9	42.4	42.4	42.4
Tuberculosis of lungs	4,752	4,529	3,200	3,081	1,552	1,486	67.3	66.9	32.7	33.1	33.1	32.7	33.1	33.1	33.1
Tuberculosis of other organs	799	701	445	464	354	327	55.7	58.7	44.3	41.3	41.3	44.3	41.3	41.3	41.3
Cancer	2,776	2,687	1,271	1,273	1,505	1,414	45.8	47.4	54.2	52.6	52.6	54.2	52.6	52.6	52.6
Other general diseases	1,645	1,591	970	945	673	646	59.0	60.4	41.0	40.6	40.6	41.0	40.6	40.6	40.6
Meningitis	273	381	158	199	115	132	57.9	60.1	42.1	39.9	39.9	42.1	39.9	39.9	39.9
Other diseases of nervous system	3,151	3,239	1,901	1,922	1,850	1,317	57.2	59.3	42.8	40.7	40.7	42.8	40.7	40.7	40.7
Diseases of circulatory system	7,251	6,397	4,453	3,942	2,798	2,455	61.4	61.6	38.6	38.4	38.4	38.6	38.4	38.4	38.4
Pneumonia and broncho-pneumonia	3,063	2,677	1,984	1,615	1,179	1,062	61.5	60.3	38.5	39.7	39.7	38.5	39.7	39.7	39.7
Other diseases of respiratory system	728	786	385	449	348	387	52.9	57.1	47.1	42.9	42.9	47.1	42.9	42.9	42.9
Diarrhea and enteritis, under 2 years	795	889	449	502	346	387	56.5	56.5	43.5	48.5	48.5	43.5	48.5	48.5	48.5
Diarrhea and enteritis, 2 years and over	415	362	235	198	180	154	56.6	56.3	43.4	43.7	43.7	43.4	43.7	43.7	43.7
Other diseases of digestive system	1,949	1,982	1,192	1,173	757	759	61.2	60.7	38.8	39.3	39.3	38.8	39.3	39.3	39.3
Bright's disease and nephritis	2,684	2,446	1,713	1,527	971	919	63.8	62.4	36.2	37.6	37.6	36.2	37.6	37.6	37.6
Childbirth	366	314			366	344			100.0	100.0	100.0				
Diseases of early infancy	1,478	1,454	892	828	616	626	56.3	56.9	43.7	43.1	43.1	43.7	43.1	43.1	43.1
Suicide	1,035	912	866	771	167	141	88.9	84.5	16.1	15.5	15.5	16.1	15.5	15.5	15.5
Other violence	3,110	3,076	2,491	2,476	619	600	80.1	80.5	19.9	19.5	19.5	19.9	19.5	19.5	19.5
All other causes	1,525	1,570	805	865	720	706	52.8	55.1	47.2	44.9	44.9	47.2	44.9	44.9	44.9

This table shows that in both 1915 and 1914 the per cents male were highest for deaths from the following important causes: Suicide, 83.9 and 84.5; other violence, 80.1 and 80.5; typhoid fever, 69.6 and 68.6; tuberculosis of the lungs, 67.3 and 66.9; Bright's disease and nephritis, 63.8 and 62.4; and diseases of the circulatory system, 61.4 and 61.6.

On the other hand, except of course for deaths from childbirth, the per cent female was notably high each year only for whooping cough, 61.3 and 52.9; cancer, 54.2 and 52.6; diphtheria and croup, 51.3 and 48.9; measles, 45.5 and 49.7; scarlet fever, 49.1 and 40.0; and influenza, 47.0 and 48.6.

Race.—The race distribution of persons dying in the several geographic divisions in 1915 and 1914 is given in the following table, together with the per cent white among decedents:

TABLE 16.—Deaths Classified by Race, with Per Cent White, for Geographic Divisions: 1915 and 1914.

Geographic division	Deaths						Per cent white
	Total	White	Negro	Indian	Chinese	Japanese	
1915.							
The State	39,026	36,890	583	139	751	663	94.5
Northern California	4,101	3,895	22	76	69	39	95.0
Coast counties	2,088	2,020	4	34	16	14	96.7
Interior counties	2,013	1,875	18	42	53	25	93.1
Central California	20,803	19,537	242	39	612	373	93.9
San Francisco	7,259	6,822	54	1	288	74	94.3
Other bay counties	4,706	4,477	92	7	86	44	95.1
Coast counties	2,610	2,507	13	4	36	50	96.1
Interior counties	6,228	5,711	83	27	202	205	91.7
Southern California	14,122	13,458	319	24	70	251	95.3
Los Angeles	9,590	9,068	263	5	41	103	94.8
Other counties	4,532	4,370	56	19	29	58	96.4
Northern and Central California	24,904	23,432	264	115	681	412	91.1
Coast counties	16,663	15,846	163	46	426	182	95.1
Interior counties	8,241	7,586	101	69	255	230	92.1
Metropolitan area	11,965	11,319	146	8	374	118	94.6
Rural counties	12,939	12,113	118	107	307	294	93.6
1914.							
The State	37,537	35,513	569	170	657	628	94.6
Northern California	3,957	3,726	19	98	79	35	94.2
Coast counties	2,014	1,984	3	43	24	10	96.0
Interior counties	1,943	1,792	16	55	55	25	92.2
Central California	20,089	18,867	272	44	502	404	93.9
San Francisco	6,940	6,570	57	—	252	61	94.7
Other bay counties	4,576	4,372	89	3	66	46	95.5
Coast counties	2,472	2,344	19	4	30	75	94.8
Interior counties	6,101	5,581	107	37	154	222	91.5
Southern California	13,491	12,920	278	28	76	189	95.8
Los Angeles	9,038	8,616	218	1	53	150	95.3
Other counties	4,453	4,304	60	27	23	39	96.7
Northern and Central California	24,046	22,593	291	142	581	439	94.0
Coast counties	16,002	15,220	168	50	372	192	95.1
Interior counties	8,044	7,373	123	92	209	247	91.7
Metropolitan area	11,516	10,942	146	3	318	107	95.0
Rural counties	12,530	11,651	145	139	263	332	93.0

It appears from Table 16 that in 1915 the white decedents numbered 36,890, or 94.5 per cent; the Chinese, 751; the Japanese, 663; the Negroes, 583; and the Indians, 139. For 1914 the figures were as follows: White, 35,513, or 94.6 per cent; Chinese, 657; Japanese, 628; Negro, 569; and Indian, 170.

The per cent white for California as a whole was virtually the same in 1915 and 1914, 94.5 and 94.6, respectively, as the annual average per cent of 94.6 for the ten year period 1906 to 1915. The per cent white was as follows through the ten years: 94.5 (1906), 94.3, 94.8, 94.6, 94.7 (1910 and 1911), 94.6 (1912, 1913 and 1914), and 94.5 (1915).

In both 1915 and 1914 the per cents white were higher for southern California than for the territory north of Tehachapi, being lowest among main geographic divisions for central California.

Among minor geographic divisions the per cents white were above the state averages for both 1915 and 1914 in the following cases: Southern California outside Los Angeles, coast counties of northern California, bay counties except San Francisco, coast counties of central California, and Los Angeles. The per cent white was also slightly above the state average in 1914 alone for San Francisco.

The per cent white was somewhat greater each year for the metropolitan area than for the rural counties north of Tehachapi, but was slightly less for San Francisco alone than for the group of suburban counties.

Each year the deaths among Chinese occurred mainly in San Francisco and suburbs and in the interior counties of central California. The deaths of Japanese occurred mainly in the interior counties of central California and also in Los Angeles. The number of negro decedents was particularly great only for Los Angeles in both years. More than half the Indian deaths each year were in northern California.

Race and Cause of Death.—The following table shows for California in 1915 and 1914 the deaths from certain principal causes classified by race, as well as the per cent white in each case:

TABLE 17.—Deaths from Certain Principal Causes Classified by Race, with Per Cent White, for California: 1915 and 1914.

Cause of death	Deaths						Per cent white
	Total	White	Negro	Indian	Chinese	Japanese	
1915.							
All causes	39,026	36,890	583	139	751	663	94.5
Typhoid fever	276	254	3	3	6	10	92.0
Malarial fever	45	41		1	1	2	91.1
Smallpox	3	3					100.0
Measles	132	126	1	1	2	2	95.5
Scarlet fever	53	51	1		1		96.2
Whooping-cough	124	117	1	1		5	94.4
Diphtheria and croup	310	308	1			1	99.4
Influenza	181	177	1			3	97.8
Plague	1	1					100.0
Other epidemic diseases	116	109	2		3	2	94.0
Tuberculosis of lungs	4,752	4,326	136	31	180	79	91.0
Tuberculosis of other organs	799	714	18	8	13	46	89.4
Cancer	2,776	2,693	23	7	33	20	97.0
Other general diseases	1,645	1,509	22	2	34	18	95.4
Meningitis	273	249	1	1	3	19	91.2
Other diseases of nervous system	3,151	3,058	37	5	40	11	97.0
Diseases of circulatory system	7,251	6,976	97	8	148	22	96.2
Pneumonia and broncho-pneumonia	3,063	2,887	46	13	54	63	94.3
Other diseases of respiratory system	728	693	4	4	15	12	95.2
Diarrhea and enteritis, under 2 years	795	714	6	2	9	64	89.8
Diarrhea and enteritis, 2 years and over	415	394	5	1	4	11	94.9
Other diseases of digestive system	1,949	1,835	31	6	37	40	94.2
Bright's disease and nephritis	2,681	2,553	45	8	60	18	95.1
Childbirth	356	321	7	6	1	21	90.2
Diseases of early infancy	1,478	1,364	24	5	13	72	92.3
Suicide	1,035	984	6	2	19	24	95.1
Other violence	3,110	2,918	44	17	58	73	93.8
All other causes	1,525	1,455	21	7	17	25	95.4
1914.							
All causes	37,537	35,513	569	170	657	628	94.6
Typhoid fever	376	349	8	1	3	15	92.8
Malarial fever	70	60	3		3	4	85.7
Smallpox	1	1					100.0
Measles	153	150			1	2	98.0
Scarlet fever	90	89				1	98.9
Whooping-cough	306	294	2		1	9	96.1
Diphtheria and croup	268	259	1		4	4	96.6
Influenza	138	129	3	1	3	2	93.5
Other epidemic diseases	132	130			1	1	98.5
Tuberculosis of lungs	4,529	4,130	130	47	161	58	91.2
Tuberculosis of other organs	791	721	18	8	10	34	91.2
Cancer	2,687	2,635	15	4	22	11	98.1
Other general diseases	1,591	1,526	21	5	22	17	95.9
Meningitis	331	299	6		2	24	90.3
Other diseases of nervous system	3,239	3,139	37	6	45	12	96.9
Diseases of circulatory system	6,397	6,158	86	12	110	31	96.3
Pneumonia and broncho-pneumonia	2,677	2,492	42	25	49	69	93.1
Other diseases of respiratory system	786	735	12	2	23	14	93.5
Diarrhea and enteritis, under 2 years	889	806	15	3	3	62	90.7
Diarrhea and enteritis, 2 years and over	352	336	5	1	4	6	95.5
Other diseases of digestive system	1,932	1,812	33	12	35	40	93.8
Bright's disease and nephritis	2,446	2,331	39	6	58	12	95.3
Childbirth	344	323	3	3	1	14	93.9
Diseases of early infancy	1,454	1,360	19	1	10	64	93.5
Suicide	912	845	8	4	24	31	92.7
Other violence	3,076	2,894	44	19	44	75	94.1
All other causes	1,570	1,510	19	10	15	16	96.2

The per cents white were above the general averages of 94.5 and 94.6 for 1915 and 1914, respectively, for deaths from the following important causes: Typhoid fever, 97.4 and 96.6; cancer, 97.0 and 95.6; measles of the nervous system other than meningitis, 97.0 and 95.6; measles of the respiratory system, 96.2 and 96.3; scarlet fever, 95.1 and 95.2; measles, 95.5 and 95.6; and Bright's disease and nephritis, 95.1 and 95.3.

The table also demonstrates that the per cents white are very low indeed for typhoid fever, 32.1 and 32.6, as well as for tuberculosis, being 31.1 and 31.6 for the primary form and 89.4 and 91.2 for all other kinds.

From further analysis of the figures in the table it appears that the proportion of Caucasians among all dying from typhoid fever is relatively small, because many deaths from this disease occur among the Japanese, and that the proportion of Caucasians among tuberculosis victims is relatively small, because the "great white plague" is especially fatal among Chinese and Negroes.

Thus, the per cents Japanese among all dying from typhoid fever were no less than 3.6 in 1915 (10 among 276) and 4.0 in 1914 (15 among 376), while the per cent Japanese among all decedents was only 1.7 each year.

The Chinese and Negroes are likewise strongly represented among the victims of pulmonary tuberculosis in California, the Chinese who died from tuberculosis of the lungs numbering 180 in 1915 and 164 in 1914, and the Negroes numbering, respectively, 136 and 130. While the per cents Chinese were only 1.9 in 1915 and 1.7 in 1914 among all decedents in California, the per cents Chinese were no less than 3.8 and 3.6 for deaths from tuberculosis of the lungs. Similarly, while the per cent Negro was only 1.5 each year among all decedents, the per cent Negro was as great as 2.9 in 1915 and 2.1 in 1914 among those dying from pulmonary tuberculosis alone. For tuberculosis of other organs than the lungs the per cents in 1915 and 1914, respectively, were notably high for Japanese, 5.8 and 4.3, as well as for Negroes, 2.2 and 2.3.

Nativity of White Decedents.—In further analysis of deaths by race, the nativity of white decedents is worth considering. Accordingly, Table 18, which follows, has been prepared classifying white decedents as born in California, born in other states, foreign born, or nativity unknown.

TABLE 18.—White Decedents Classified by Nativity, with Per Cents, for Geographic Divisions: 1915 and 1914.

Geographic division	White decedents				Unknown	Per cent			
	Total	Born in California	Born in other states	Foreign born		Born in California	Born in other states	Foreign born	Unknown
1915.									
The State	36,890	9,235	14,905	11,761	989	25.0	40.4	31.9	2.7
Northern California	3,895	1,077	1,544	1,156	118	27.7	30.6	29.7	3.0
Coast counties	2,020	546	742	681	51	27.0	36.8	33.7	2.5
Interior counties	1,875	531	802	475	67	28.3	42.8	26.3	3.6
Central California	19,537	5,721	6,148	7,174	494	29.3	31.5	36.7	2.5
San Francisco	6,842	2,021	1,581	3,036	204	29.5	23.1	44.4	3.0
Other bay counties	4,477	1,268	1,494	1,649	66	28.3	33.4	36.8	1.5
Coast counties	2,507	721	909	888	39	28.8	36.3	33.4	1.5
Interior counties	5,711	1,711	2,164	1,651	185	30.0	37.9	28.9	3.2
Southern California	13,458	2,437	7,213	3,431	377	18.1	53.6	25.5	2.8
Los Angeles	9,088	1,466	5,072	2,341	209	16.1	55.8	25.8	2.3
Other counties	4,370	971	2,141	1,090	168	22.2	49.0	24.9	3.9
Northern and Central Cal.	23,432	6,798	7,692	8,330	612	29.0	32.8	35.6	2.6
Coast counties	15,546	4,556	4,726	6,204	360	28.7	29.8	39.2	2.3
Interior counties	7,886	2,242	2,966	2,126	252	29.6	39.1	28.0	3.3
Metropolitan area	11,319	3,289	3,075	4,685	270	29.0	27.2	41.4	2.4
Rural counties	12,113	3,509	4,617	3,645	342	29.0	38.1	30.1	2.8
1914.									
The State	35,513	9,412	13,962	11,177	972	26.5	39.3	31.5	2.7
Northern California	3,726	1,004	1,516	1,066	120	26.9	40.7	29.2	3.2
Coast counties	1,934	529	719	647	39	27.4	37.2	33.4	2.0
Interior counties	1,792	475	797	439	81	26.5	44.5	24.5	4.5
Central California	18,867	5,864	5,727	6,804	472	31.1	30.3	36.1	2.5
San Francisco	6,570	2,072	1,482	2,832	184	31.5	22.6	43.1	2.8
Other bay counties	4,372	1,348	1,334	1,614	76	30.8	30.5	36.9	1.8
Coast counties	2,344	706	886	770	33	30.1	35.7	32.8	1.4
Interior counties	5,581	1,739	2,075	1,588	179	31.2	37.2	28.4	3.2
Southern California	12,920	2,544	6,709	3,287	380	19.7	51.9	25.4	3.0
Los Angeles	8,616	1,544	4,647	2,205	220	17.9	53.9	25.6	2.6
Other counties	4,304	1,000	2,062	1,082	160	23.2	47.9	25.2	3.7
Northern and Central Cal.	22,593	6,808	7,243	7,890	502	30.4	32.1	34.9	2.6
Coast counties	15,220	4,654	4,371	5,863	332	30.6	28.7	38.5	2.2
Interior counties	7,373	2,214	2,872	2,027	260	30.0	39.0	27.5	3.5
Metropolitan area	10,942	3,420	2,816	4,446	260	31.3	25.7	40.6	2.4
Rural counties	11,651	3,448	4,427	3,444	332	29.6	38.0	29.6	2.8

Table 18 shows that of the 36,890 white decedents in 1915 and the 35,513 in 1914, those born in other states totaled 14,905 and 13,952; the foreign born numbered 11,761 and 11,177; the native Californians were 9,235 and 9,412; and the nativity was unknown for 989 in 1915 and 972 in 1914. The per cent distribution of white decedents by nativity was as follows for 1915 and 1914, respectively: Other states, 40.4 and 39.3; foreign countries, 31.9 and 31.5; California, 25.0 and 26.5; and unknown, 2.7 each year. In 1906 to 1915 the annual average per cents were as follows: Other American, 37.7; foreign, 31.8; Californian, 27.3; and unknown, 3.2.

It may be noted that the per cent of other Americans among white decedents in California increased considerably between 1906 and 1915 as follows: 34.9 (1906), 35.7, 35.9, 36.7, 37.6, 38.0, 39.2, 39.2 again, 39.3 and 40.4 (1915). The per cent foreign born remained quite stationary through the ten years, thus: 31.9 (1906), 32.0, 31.9, 32.2, 31.1, 32.4, 31.5, 31.2, 31.5, and 31.9 (1915). However, the per cent of native Californians among white decedents here decreased somewhat during the decade, as follows: 28.4 (1906 and 1907), 28.9, 28.1, 28.3, 26.6, 26.3, 26.5 (1913 and 1914), and 25.0 (1915). The per cent of unknown nativity also decreased in the ten-year period, thus: 4.8 (1906), 3.9, 3.3, 3.0 (1909 to 1912, inclusive), 3.1 and 2.7 (1914 and 1915).

The proportion of California decedents who were born in other states is very high indeed for the counties south of Tehachapi, especially Los Angeles, the per cents being 53.6 and 51.9 for southern California in 1915 and 1914 and no less than 55.8 and 53.9, respectively, for Los Angeles alone. On the other hand, the per cents born in other states were only 32.8 and 32.1 in 1915 and 1914 for the counties north of Tehachapi, being considerably greater each year for northern California than for central California. The per cents born elsewhere in the United States than California were much less for the metropolitan area than for the rural counties north of Tehachapi, and were also much less for San Francisco than for the other bay counties.

The proportion of foreign born decedents is particularly great only in central California, where the per cent foreign born was 36.7 in 1915 and 36.1 in 1914. The per cent foreign born was less than 30.0 each year for northern California and only about 25.0 for southern California. The per cent was 41.4 in 1915 and 40.6 in 1914 for the metropolitan area against 30.1 and 29.6 for the rural counties north of Tehachapi. The per cent of foreign born decedents in San Francisco was as great as 44.4 in 1915 and 43.1 in 1914 as compared with 36.8 and 36.9, respectively, for the group of suburban counties.

The per cent of native Californians among white decedents was greatest in both 1915 and 1914 for central California, 29.3 and 31.1, and next for northern California, 27.7 and 26.9, being merely 18.1 and

19.7 for southern California. The proportion of decedents born within the state was greater in general for the metropolitan area than for the rural counties north of Tehachapi, and was likewise slightly greater for San Francisco alone than for the other bay counties as a group.

Nativity and Cause of Death.—The following table gives numbers and per cent showing the nativity of Caucasians dying from certain principal causes in California in 1915 and 1914:

TABLE 19.—White Decedents Dying from Certain Principal Causes, Classified by Nativity, with Per Centa, for California: 1910 and 1914.

Cause of death	White decedents					Per cent		
	Total	Born in California	Born in other states	Foreign born	Unknown	Born in California	Born in other states	Foreign born
1915.								
All causes	36,800	9,433	14,045	11,701	199	23.0	40.4	21.0
Typhoid fever	251	108	85	64	3	47.3	33.5	99.8
Malarial fever	41	14	19	6	2	84.9	40.8	11.0
Smallpox	3	2	1			66.7	33.3	
Measles	126	101	17	3		81.1	13.5	4.4
Scarlet fever	31	37	11	2	1	79.5	91.6	8.0
Whooping-cough	117	110	7			94.0	6.0	
Diphtheria and croup	368	245	46	14	3	70.0	14.0	4.0
Influenza	177	92	90	59	1	17.4	54.9	29.8
Plague	1			1			100.0	
Other epidemic diseases	169	41	44	24		87.6	40.4	99.0
Tuberculosis of lungs	4,826	1,087	1,768	1,431	87	24.0	40.0	28.1
Tuberculosis of other organs	711	393	197	123	1	55.1	9.6	17.9
Cancer	2,693	287	1,372	1,046	24	10.7	60.9	36.4
Other general diseases	1,569	371	676	473	60	23.6	48.1	30.1
Meningitis	249	153	56	22	3	61.4	29.6	10.9
Other diseases of nervous system	3,048	382	1,664	1,047	65	12.6	31.3	24.9
Diseases of circulatory system	6,976	599	3,868	2,615	174	8.6	48.0	40.0
Pneumonia and broncho-pneumonia	2,887	987	980	913	67	32.0	48.0	81.6
Other diseases of respiratory system	693	110	202	375	7	21.6	87.4	20.7
Diarrhea and enteritis, under 2 years	714	690	18			96.6	8.6	0.0
Diarrhea and enteritis, 2 years and over	384	110	169	106	9	27.9	42.9	30.0
Other diseases of digestive system	1,836	482	770	604	20	25.6	42.0	32.0
Bright's disease and nephritis	2,553	338	1,274	898	48	13.3	40.9	30.8
Childbirth	321	98	120	103		30.6	87.4	32.1
Diseases of early infancy	1,364	1,367	6	1		99.6	0.4	0.1
Suicide	984	138	844	380	132	14.0	35.0	35.0
Other violence	2,918	706	964	1,063	246	21.2	39.7	31.4
All other causes	1,455	373	601	401	20	25.6	40.4	27.0
1914.								
All causes	35,513	9,412	13,092	11,177	972	26.5	30.3	21.5
Typhoid fever	340	187	110	90	6	30.3	33.2	23.8

Malarial fever	60	20	22	15	8	33.3	36.7	25.0	5.0
Smallpox	1	1				100.0			
Measles	150	129	16	5		86.0	10.7	3.3	
Scarlet fever	89	62	23	4		69.7	25.8	4.5	
Whooping-cough	294	274	16	4		93.2	5.4	1.4	
Diphtheria and croup	289	197	45	15	2	76.1	17.4	5.8	0.7
Influenza	129	23	64	41	1	17.8	49.6	31.8	0.8
Other epidemic diseases	130	49	41	38	2	37.7	31.6	29.2	1.5
Tuberculosis of lungs	4,130	949	1,705	1,397	79	23.0	41.3	33.8	1.9
Tuberculosis of other organs	721	373	217	125	6	51.8	30.1	17.3	0.8
Cancer	2,635	292	1,278	1,039	26	11.1	48.5	39.4	1.0
Other general diseases	1,326	383	665	443	35	25.8	42.9	29.0	2.3
Meningitis	299	187	64	43	5	62.5	21.4	14.4	1.7
Diseases of nervous system	3,139	376	1,646	1,054	63	12.0	52.4	33.6	2.0
Diseases of circulatory system	6,158	520	2,944	2,539	155	8.5	47.8	41.2	2.5
Pneumonia and broncho-pneumonia	2,492	965	724	712	61	39.9	39.1	28.6	2.4
Other diseases of respiratory system	735	170	283	273	9	23.1	38.5	37.1	1.2
Diarrhea and enteritis, under 2 years	906	765	32	8	1	94.9	4.0	1.0	0.1
Diarrhea and enteritis, 2 years and over	336	96	141	91	8	28.6	41.9	27.1	2.4
Other diseases of digestive system	1,812	428	734	612	38	23.6	40.5	33.8	2.1
Bright's disease and nephritis	2,331	815	1,156	824	86	13.5	49.6	35.4	1.5
Childbirth	823	101	119	102	1	31.3	36.8	31.6	0.3
Diseases of early infancy	1,360	1,357	2			99.8	0.1	0.1	
Suicide	845	115	291	299	140	13.6	31.4	35.4	16.6
Other violence	2,894	679	975	965	275	23.5	33.7	33.3	9.5
All other causes	1,510	409	643	438	20	27.1	42.6	29.0	1.3

The per cents born in California were above the general averages of 25.0 in 1915 and 26.5 in 1914 for deaths from the following important causes: Early infancy, 99.5 and 99.8; diarrhea and enteritis, under two years, 96.6 and 94.9; whooping cough, 94.0 and 93.2; measles, 84.1 and 86.0; diphtheria and croup, 79.6 and 76.1; scarlet fever, 72.5 and 69.7; meningitis, 61.4 and 62.5; tuberculosis other than pulmonary, 55.1 and 51.8; typhoid fever, 42.5 and 39.3; malarial fever, 34.2 and 33.3; pneumonia and broncho-pneumonia, 32.5 and 39.9; childbirth, 30.5 and 31.3; and diarrhea and enteritis, two years and over, 27.9 and 28.6.

The per cents born in other states were above the general averages of 40.4 and 39.3 in 1915 and 1914, respectively, for deaths from the following notable causes: Influenza, 54.2 and 49.6; diseases of the nervous system other than meningitis, 51.2 and 52.4; cancer, 50.9 and 48.5; Bright's disease and nephritis, 49.9 and 49.6; diseases of the circulatory system, 48.6 and 47.8; general diseases other than tuberculosis and cancer, 43.1 and 42.9; diarrhea and enteritis, 2 years and over, 42.9 and 41.9; tuberculosis of the lungs, 40.9 and 41.3; and diseases of the digestive system, except diarrhea, 42.0 and 40.5.

The per cents foreign born were above the general averages of 31.9 in 1915 and 31.5 in 1914 for deaths from the following causes: Diseases of the circulatory system, 40.3 and 41.2; cancer, 37.4 and 39.4; diseases of the respiratory system other than pneumonia, 39.7 and 37.1; Bright's disease and nephritis, 35.2 and 35.4; suicide, 35.6 and 35.4; other violence, 34.4 and 33.3; diseases of the nervous system other than meningitis, 34.2 and 33.6; diseases of the digestive system other than diarrhea, 32.9 and 33.8; and childbirth, 32.1 and 31.6.

The per cent of unknown nativity, 2.7 in both 1915 and 1914, is very high indeed for suicides, 15.4 and 16.6, as well as for deaths from other violence (drowning, accidental injuries, etc.), 8.7 and 9.5, respectively.

Age Periods.—The following table gives for the several geographic divisions in 1915 and 1914 the classification of decedents by nine selected age periods, representing in a rough way, infancy, childhood, youth, five productive ages, and old age:

TABLE 20.—Deaths Classified by Age Periods, for Geographic Divisions: 1915 and 1914.

Geographic division	All ages.	Under 1 year.	1 to 4 years.	5 to 14 years.	15 to 24 years.	25 to 34 years.	35 to 44 years.	45 to 54 years.	55 to 64 years.	65 years and over.
1915.										
The State	39,026	3,570	1,510	1,089	2,144	3,759	4,265	4,777	5,471	12,441
Northern California	4,101	292	143	113	226	335	431	442	528	1,501
Coast counties	2,088	135	75	52	117	158	209	235	276	831
Interior counties	2,013	157	68	61	109	177	222	207	252	700
Central California	20,803	1,877	853	575	1,096	1,986	2,329	2,736	3,067	6,284
San Francisco	7,250	538	295	203	326	764	934	1,151	1,146	1,902
Other bay counties	4,706	454	182	119	240	396	464	509	715	1,567
Coast counties	2,610	206	96	63	132	198	233	277	384	1,027
Interior counties	6,228	690	280	190	398	633	698	739	822	1,788
Southern California	14,122	1,401	514	401	822	1,438	1,505	1,599	1,876	4,506
Los Angeles	9,590	875	320	251	537	944	1,022	1,081	1,291	3,269
Other counties	4,532	526	194	150	285	494	483	518	585	1,237
Northern and Central California	24,904	2,169	996	688	1,322	2,321	2,760	3,178	3,595	7,875
Coast counties	16,663	1,332	648	437	815	1,511	1,840	2,232	2,521	5,327
Interior counties	8,241	837	348	251	507	810	920	946	1,074	2,548
Metropolitan area	11,965	992	477	322	566	1,160	1,398	1,720	1,961	3,469
Rural counties	12,939	1,177	519	366	756	1,161	1,362	1,458	1,734	4,406
1914.										
The State	37,537	3,964	1,628	1,081	2,125	3,770	4,249	4,579	5,019	11,122
Northern California	3,957	315	128	130	218	354	356	441	504	1,511
Coast counties	2,014	160	61	62	103	174	187	229	258	780
Interior counties	1,943	155	67	68	115	180	169	212	246	731
Central California	20,089	2,119	979	560	1,071	1,901	2,335	2,626	2,762	5,736
San Francisco	6,940	628	331	191	319	689	965	1,001	1,002	1,724
Other bay counties	4,576	511	256	124	251	369	454	515	636	1,490
Coast counties	2,472	237	96	57	139	174	236	266	345	922
Interior counties	6,101	743	296	188	362	669	680	754	779	1,630
Southern California	13,491	1,590	521	391	836	1,515	1,568	1,512	1,753	3,875
Los Angeles	9,088	953	322	232	527	1,030	1,061	1,049	1,188	2,676
Other counties	4,453	577	190	159	309	485	497	463	565	1,199
Northern and Central California	24,046	2,434	1,107	690	1,289	2,255	2,691	3,067	3,266	7,247
Coast counties	16,002	1,586	744	434	812	1,406	1,842	2,101	2,241	4,866
Interior counties	8,044	808	363	256	477	849	849	966	1,025	2,361
Metropolitan area	11,516	1,139	587	315	570	1,058	1,419	1,606	1,638	3,184
Rural counties	12,580	1,295	620	375	719	1,197	1,272	1,461	1,628	4,063

Table 20 shows that the 39,026 deaths in 1915 and the 37,537 in 1914, were distributed by age periods as follows: Under 1 year, 3,570 and 3,964; 1 to 4 years, 1,510 and 1,628; 5 to 14 years, 1,089 and 1,081; 15 to 24 years, 2,144 and 2,125; 25 to 34 years, 3,759 and 3,770; 35 to 44 years, 4,265 and 4,249; 45 to 54 years, 4,777 and 4,579; 55 to 64 years, 5,471 and 5,019; and 65 years and over, 12,441 and 11,122.

To facilitate comparisons between geographic divisions, the absolute numbers in the preceding table have been reduced to per cents, as given in Table 21.

It appears from Table 21 that the per cent distribution of deaths in California was as follows for 1915 and 1914, respectively: Under 1 year, 9.2 and 10.6; 1 to 4 years, 3.9 and 4.3; 5 to 14 years, 2.8 and 2.9; 15 to 24 years, 5.5 and 5.7; 25 to 34 years, 9.6 and 10.0; 35 to 44 years, 10.9 and 11.3; 45 to 54 years, 12.2 each year; 55 to 64 years, 14.0 and 13.4; and 65 years and over, 31.9 and 29.6.

The annual average per cents for the whole ten years, 1906 to 1915, are limited to five age periods and stand as follows: Under 1 year, infancy, 10.9; 1 to 4 years, childhood, 4.3; 5 to 14 years, youth, 3.0; 15 to 44 years, productive ages, 52.6; and 65 years and over, old age, 29.3.

Data on deaths by the whole nine age periods shown in Tables 20 and 21 are available only for the five years last past, the annual average per cents for 1911 to 1915 being as follows: Under 1 year, 10.4; 1 to 4 years, 4.2; 5 to 14 years, 2.8; 15 to 24 years, 5.9; 25 to 34 years, 9.9; 35 to 44 years, 11.2; 45 to 54 years, 12.1; 55 to 64 years, 13.3; and 65 years and over, 30.2.

The per cent of total deaths occurring in infancy, under 1 year, decreased considerably between 1906 and 1915 as follows: 11.4 (1906), 11.0, 11.5, 11.2, 11.5, 10.4, 10.8, 11.2, 10.6, and 9.2 (1915). The per cent of deaths in childhood, 1 to 4 years, also decreased somewhat, thus: 4.5 (1906), 4.8, 4.4, 4.2, 4.7, 4.1, 4.4, 4.2, 4.3, and 3.9 (1915). Similarly, the per cent of deaths in youth, 5 to 14 years, decreased generally as follows: 3.4 (1906 and 1907), 3.5, 3.0, 2.7 (1910 to 1913, inclusive), 2.9, and 2.8 (1915).

However, the per cent of deaths in the productive ages, 15 to 64 years, varied comparatively little through the whole ten years, as appears from the following successive per cents: 52.3 (1906), 53.9, 52.7, 52.6, 52.3, 53.2, 52.2, 51.8, 52.6, and 52.2 (1915).

From data available for only the five years last past it appears that between 1911 and 1915 the proportion of all deaths decreased generally for the early productive ages of 15 to 44 years, remained stationary for the next productive age, 45 to 54 years, and increased notably for the final productive age, 55 to 64 years. The successive per cents in 1911 to 1915 decreased as follows: 15 to 24 years, 6.5, 6.1, 5.9, 5.7, and 5.5; 25 to 34 years, 10.1, 9.9, 9.8, 10.0, and 9.6; and 35 to 44 years, 11.6, 11.1, 10.9, 11.3, and 10.9. At the same time the per cent of deaths at the next age period, 45 to 54 years, remained stationary, thus: 11.9 (1911), 12.2, 12.1, and 12.2 (1914 and 1915). On the other hand, the per cent of deaths at the final productive age, 55 to 64 years, increased notably as follows: 13.1 (1911), 12.9, 13.1, 13.4, and 14.1.

The per cent of deaths at the period of old age, 65 years and over, increased considerably through the whole ten years as follows: 28.4 (1901), 29.1, 27.9, 29.0, 28.7, 29.6, 29.2, 30.1, 29.6, and 31.9 (1915).

Comparison of the per cent distribution of deaths in California by age periods between 1906 and 1915, or between 1911 and 1915 for certain age periods, indicates that there have been marked decreases in the proportion of deaths occurring in infancy, childhood, youth, and successive productive ages to 44 years, that the proportion of all deaths at 45 to 54 years remains stationary, and that there have been notable increases in the proportion of total deaths at 55 to 64 years as well as at 65 years and over.

It appears from Table 21, moreover, that the per cent of all deaths occurring at under 45 years was only 41.9 in 1915, and 44.8 in 1914, as compared with 44.7 in 1913, 45.0 in 1912, and 45.4 in 1911. Conversely, the per cent of total deaths at 45 years and over was as great as 58.1 in 1915 and 55.2 in 1914 against 55.3 in 1913, 55.0 in 1912, and 54.6 in 1911.

Reference to Table 21 indicates, as to geographic divisions, that the per cent of deaths in infancy, or the first year of life, was very low in both 1915 and 1914 for northern California, but was rather high each year for central as well as southern California. The per cents vary somewhat irregularly among minor geographic divisions, but were particularly high for the counties south of Tehachapi outside Los Angeles as well as for the interior counties of central California.

The same observations may also be made as to the proportion of deaths in childhood, 1 to 4 years, while for deaths in youth, 5 to 14 years, no very marked variations appear between the several geographic divisions.

With reference to deaths at successive productive ages covering the whole period from 15 to 64 years it seems that at the ages of 15 to 24, and 25 to 34, as well as at 35 to 44 in less degree, the per cent of deaths is relatively high for southern California, probably because of the great mortality from tuberculosis at these ages in this section. At 45 to 54 years as well as at 55 to 64 years, however, the per cent of deaths is particularly high for central California, especially San Francisco. In fact, for the whole period from 35 to 64 years the per cents are much greater for the metropolitan area than for the rural counties north of Tehachapi.

The proportion of deaths at the period of old age, 65 years and over, is especially great only for northern California among the main geographic divisions. However, among minor geographic divisions the per cent of deaths at 65 years and over was above the general average

each year not only for both the coast and interior counties of northern California, but also for the coast counties of central California and, in less degree, for the bay counties other than San Francisco.

Age and Cause of Death.—Tables 22 and 23 on the following pages show for California in 1915 and 1914 first, the number of deaths from certain principal causes classified by nine age periods, and second, the per cent distribution, by nine age periods, of the deaths from each of these causes.

TABLE 22.—Deaths from Certain Principal Causes, Classified by Age Periods, for California: 1913 and 1914.

Cause of death	Deaths									
	All ages	Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
1913.										
All causes	30,026	3,570	1,340	1,089	2,144	3,539	4,960	4,111	8,421	19,441
Typhoid fever	276	—	13	28	60	69	40	97	18	11
Malarial fever	45	6	8	5	0	1	9	8	2	19
Smallpox	3	1	—	—	1	—	—	—	—	—
Measles	182	41	31	90	4	7	1	—	—	—
Scarlet fever	33	3	22	22	3	3	3	—	—	—
Whooping-cough	124	72	44	—	—	—	—	—	—	—
Diphtheria and croup	310	15	141	190	10	9	8	0	1	—
Influenza	181	10	7	3	—	4	0	8	31	119
Plague	1	—	—	—	1	—	—	—	—	—
Other epidemic diseases	116	21	11	2	3	8	10	18	18	80
Tuberculosis of lungs	4,762	30	37	109	780	1,316	1,047	769	496	2,606
Tuberculosis of other organs	799	66	188	107	100	119	80	70	40	99
Cancer	2,776	3	8	10	17	75	979	606	746	1,104
Other general diseases	1,645	97	49	73	66	109	936	908	337	606
Meningitis	273	63	61	39	94	16	18	10	18	14
Other diseases of nervous system	3,101	86	36	26	67	127	366	404	619	1,207
Diseases of circulatory system	7,591	7	24	71	114	901	446	848	1,099	4,106
Pneumonia and broncho-pneumonia	8,063	447	258	80	181	168	340	507	870	1,084
Other diseases of respiratory system	723	88	39	16	10	91	10	418	101	200
Diarrhea and enteritis, under two years	705	668	127	20	7	97	37	117	40	110
Diarrhea and enteritis, two years and over	416	—	80	20	7	97	37	117	40	110
Other diseases of digestive system	1,949	73	60	124	129	106	300	294	320	818
Bright's disease and nephritis	2,684	11	24	13	63	180	910	400	641	1,990
Childbirth	366	—	—	—	—	—	—	—	—	—
Diseases of early infancy	1,478	1,478	—	—	—	—	—	—	—	—
Suicide	1,085	—	—	—	74	218	240	923	178	107
Other violence	3,110	53	104	190	371	504	606	494	966	690
All other causes	1,525	281	25	13	23	80	70	26	100	209
1914.										
All causes	37,387	8,004	1,623	1,081	2,155	3,770	4,349	4,376	6,019	11,189
Typhoid fever	376	3	21	43	82	100	65	86	11	17
Malarial fever	70	6	3	6	1	9	7	13	10	17

From Table 23, giving the per cent distribution, it appears that the per cents of deaths in infancy, or the first year of life, were above the general averages of 9.2 and 10.6, in 1915 and 1914, respectively, for deaths from the following causes: Early infancy (premature birth, congenital debility, etc.), 100.0 per cent each year; diarrhea and enteritis, under 2 years, 84.0 and 83.4; whooping cough, 58.1 and 56.2; measles, 31.1 and 20.9; meningitis, 23.8 and 26.3; pneumonia and broncho-pneumonia, 14.6 and 21.8; and other diseases of the respiratory system, 12.1 and 11.2.

The per cents of deaths in childhood, 1 to 4 years, were above the general averages of 3.9 and 4.3 in 1915 and 1914 for deaths from the following causes: Diphtheria and croup, 45.5 each year; scarlet fever, 41.5 and 46.7; measles, 38.6 and 59.5; whooping cough, 35.5 and 38.6; meningitis, 23.4 and 23.9; tuberculosis of other organs than the lungs, 23.5 and 21.0; diarrhea and enteritis, 2 years and over, 20.7 and 23.9; diarrhea and enteritis, under 2 years, 16.0 and 16.6; pneumonia and broncho-pneumonia, 8.4 and 10.7; other diseases of the respiratory system, 5.3 and 6.2; miscellaneous violence, 6.2 and 5.0; and typhoid fever, 5.4 and 5.6.

The per cents of deaths in youth, 5 to 14 years, were above the general averages of 2.8 and 2.9 for deaths from the following causes: Scarlet fever, 41.5 and 43.3; diphtheria and croup, 40.7 and 42.9; measles, 19.7 and 13.7; meningitis, 14.3 and 10.0; tuberculosis other than pulmonary, 12.1 and 12.6; typhoid fever, 10.2 and 11.2; malarial fever, 11.1 and 8.6; miscellaneous violence, 6.3 and 6.6; diarrhea and enteritis, 2 years and over, 6.3 and 6.2; other diseases of the digestive system, 4.7 and 3.9; whooping cough, 4.0 and 4.6; and general diseases other than tuberculosis and cancer, 4.4 and 4.0.

The proportion of deaths occurring at 15 to 24 years exceeded the general averages of 5.5 and 5.7 for deaths from important causes as follows: Childbirth, 27.3 and 30.5; typhoid fever, 25.0 and 21.8; tuberculosis of the lungs, 15.4 and 15.6; tuberculosis of other organs, 13.7 and 14.4; miscellaneous violence, 11.9 and 12.6; suicide, 7.2 and 9.3; and diseases of the digestive system other than diarrhea, 6.6 and 6.9.

The proportion of deaths occurring at 25 to 34 years surpassed the general averages of 9.6 and 10.0 for deaths from the following important causes: Childbirth, 46.6 and 43.6; tuberculosis of the lungs, 27.7 and 27.4; typhoid fever, 25.0 and 26.6; suicide, 21.1 and 22.3; other violence, 19.1 and 21.0; and tuberculosis other than pulmonary, 14.9 and 16.1.

The proportion of deaths occurring at 35 to 44 years exceeded the general averages of 10.9 and 11.3 for deaths from the following causes: Childbirth, 26.1 and 25.9; suicide, 23.2 each year; pulmonary tuberculosis, 22.0 and 23.4; miscellaneous violence, 17.9 and 17.3; typhoid fever, 15.2 and 17.3; general diseases other than tuberculosis and cancer (*i. e.*, diabetes, alcoholism, etc.), 14.5 and 13.6; and diseases of the digestive system other than diarrhea, 13.3 and 13.1.

The proportion of deaths occurring at 45 to 54 years surpassed the general average of 12.2 each year for deaths from the following important causes: Suicide, 21.5 and 20.1; cancer, 19.4 and 20.7; general diseases other than tuberculosis and cancer, 16.3 and 19.1; diseases of the digestive system other than diarrhea, 16.6 and 17.4; pulmonary tuberculosis, 15.4 and 14.0; Bright's disease and nephritis, 15.1 and 15.4; diseases of the nervous system other than meningitis, 14.4 and 13.6; and miscellaneous violence, 13.0 and 13.8.

The proportion of deaths occurring at 55 to 64 years exceeded the general averages of 14.0 and 13.9 for deaths from the following causes: Cancer, 26.9 and 25.5; Bright's disease and nephritis, 20.2 and 18.5; diseases of the nervous system other than meningitis, 19.4 and 19.1; diseases of the circulatory system, 18.4 and 19.3; general diseases other than tuberculosis and cancer, 19.9 and 17.9; suicide, 16.7 and 15.9; and diseases of the digestive system other than diarrhea, 15.4 and 16.0.

The per cents of deaths at the period of old age, 65 years and over, were above the general averages of 31.9 and 29.6 in 1915 and 1914 for deaths from the following important causes: Influenza, 65.7 and 58.0; diseases of the circulatory system, 57.3 and 55.1; miscellaneous causes, including "old age" or senility, 55.0 and 56.8; diseases of the respiratory system other than pneumonia, 53.0 and 50.0; diseases of the nervous system other than meningitis, 47.8 and 47.1; Bright's disease and nephritis, 45.7 and 44.6; cancer, 39.8 and 38.3; and diarrhea and enteritis, 2 years and over, 35.9 and 33.5.

MEDIAN AGE.

Geographic Divisions.—The median age at death in California, half the decedents being younger and half of them older than the age stated, was 51.8 years in 1915, and 49.6 years in 1914, as compared with 49.4 years in 1913, 49.2 years in 1912, and 48.8 years in 1911. There was thus an advance between 1911 and 1915 of no less than three years in the median age at death in California. The advance in the median age continued without any break whatever throughout the five-year period but was particularly great between 1914 and 1915.

The marked advance in the median age at death indicated for California between 1914 and 1915 appeared also without exception for each of the various geographic divisions of the state, as shown in the table which follows:

TABLE 24.—Median Age at Death, for Geographic Divisions: 1915 and 1914.

Geographic division	Median age (half older and half younger)	
	1915	1914
The State	51.8	49.6
Northern California	56.3	55.8
Coast counties	57.3	56.2
Interior counties	55.0	55.0
Central California	51.4	49.4
San Francisco	50.3	48.3
Alameda County	55.1	53.2
Other bay counties	49.1	45.9
Coast counties	57.7	56.0
Interior counties	48.5	46.6
Southern California	51.2	47.8
Los Angeles City	50.1	46.5
Rest of Los Angeles County	58.6	54.5
Other counties	47.5	45.0

It appears from Table 24 that in both 1915 and 1914 the median age of decedents was highest by far for northern California, 56.3 years and 55.8 years, respectively, as compared with only 51.4 and 49.4 for central California and merely 51.2 and 47.8 for southern California.

The median age was much lower for San Francisco, 50.3 in 1915 and 48.3 in 1914, than for Alameda County, across the bay, 55.1 and 53.2. For the remaining bay counties (Contra Costa, Marin and San Mateo), as a group, however, the median age was relatively low, only 49.1 years in 1915 and 45.9 years in 1914.

The median age was likewise very much lower for Los Angeles City, 50.1 and 46.5, than for all the rest of Los Angeles County, no less than 58.6 and 54.5 in 1915 and 1914, respectively. For the remaining counties of southern California, however, the median age was only 47.5 in 1915 and 45.0 in 1914, or the lowest among geographic divisions each year respectively.

Change of Death.—The difference in the median age between 1914 and 1915 was caused by a falling from high causes in California, as shown by the table below:

TABLE 25.—Median Age at Death from Selected Causes for California: 1915 and 1914.

Cause of death	Median age (half older and half younger)	
	1915	1914
All causes	51.8	49.6
Typhoid fever	28.6	28.7
Other epidemic diseases	6.0	4.3
Tuberculosis	34.9	34.7
Cancer	61.3	60.4
Diseases of—		
Nervous system	61.9	61.4
Circulatory system	68.0	67.0
Respiratory system	55.9	47.6
Digestive system	37.9	36.4
Bright's disease and nephritis	63.0	62.3
Suicide	44.3	41.8
Other violence	37.5	36.6
All other causes	52.6	50.8

This table indicates that the median age was greater in 1915 than in 1914 for each of the selected causes of death shown except only typhoid fever, for which the slight decrease from 28.7 to 28.6 years is negligible.

Except for the group of miscellaneous epidemic diseases, including epidemic diseases connected with infancy and childhood, the median age at death was below the general average of 51.8 years in 1915 and 49.6 years in 1914 only for typhoid fever, 28.6 and 28.7; tuberculosis, 34.9 and 34.7; miscellaneous violence, 37.5 and 36.6; suicide, 44.3 and 41.8; and diseases of the digestive system (including many deaths from infantile diarrhea), 37.9 and 36.4.

In contrast with the very low median ages for deaths from typhoid fever, tuberculosis, suicide and other violence, as well as from digestive ailments, it will be observed from Table 25 that the median age at death was very high for other causes in 1915 and 1914, respectively, as follows: Diseases of the respiratory system (pneumonia, etc.), 55.9 and 47.6; cancer, 61.3 and 60.4; diseases of the nervous system (apoplexy, etc.), 61.9 and 61.4; Bright's disease and nephritis, 63.0 and 62.3; and diseases of the circulatory system (heart disease, etc.), 68.0 and 67.0.

The median age was greater for each sex in 1915 than in 1914, the figures for males being 51.8 and 50.1, and for females being 51.9 and

48.7, respectively. The median age was practically the same for each sex in 1915, male 51.8 and female 51.9, but in 1914 the age was considerably higher for males, 50.1, than for females, 48.7.

MARITAL CONDITION OF DECEDENTS.

Geographic Divisions.—Tables 26 and 27 present by numbers and per cents, respectively, the marital condition of male and female decedents aged 15 years and over for the several geographic divisions in both 1915 and 1914, children under 15 years of age being excluded from the analysis of decedents according to marital condition.

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 26.—Deaths of Males and Females 15 Years and Over Classified by Marital Condition, for Geographic Divisions: 1915 and 1914.

Geographic division	Deaths 15 years and over											
	Males					Females						
	Total	Single	Married	Widowed	Divorced	Unknown	Total	Single	Married	Widowed	Divorced	Unknown
1915.												
The State	20,394	6,408	9,275	3,049	376	1,226	12,468	1,402	5,284	4,572	172	103
Northern California	2,435	894	927	379	50	176	1,118	95	542	450	17	14
Coast counties	1,235	423	492	209	29	82	591	57	282	234	8	10
Interior counties	1,200	471	435	170	30	94	527	38	260	216	9	4
Central California	10,968	3,675	4,757	1,566	196	764	6,540	811	2,924	2,662	90	53
San Francisco	3,914	1,375	1,656	553	66	264	2,300	333	967	959	41	19
Other bay counties	2,238	623	1,105	391	40	79	1,713	216	750	722	17	8
Coast counties	1,368	428	626	244	20	50	878	106	378	372	14	8
Interior counties	3,438	1,249	1,370	378	70	371	1,640	156	839	609	18	18
Southern California	7,001	1,839	3,591	1,104	121	346	4,805	586	2,358	1,760	65	36
Los Angeles	4,734	1,233	2,459	800	83	159	3,410	339	1,671	1,234	47	19
Other counties	2,267	606	1,132	304	38	187	1,395	197	687	476	18	17
Northern and Central California	13,368	4,509	5,684	1,945	255	910	7,658	906	3,406	3,112	107	67
Coast counties	8,755	2,849	3,879	1,397	155	475	5,491	715	2,367	2,287	80	45
Interior counties	4,638	1,720	1,805	548	100	465	2,167	194	1,039	825	27	22
Metropolitan area	6,152	1,998	2,761	944	106	343	4,022	549	1,807	1,781	58	27
Rural counties	7,241	2,571	2,923	1,001	149	597	3,636	357	1,859	1,831	49	40
1914.												
The State	19,315	6,082	8,750	2,800	347	1,336	11,549	1,375	5,927	4,255	154	138
Northern California	2,287	832	866	374	54	161	1,097	121	532	404	19	28
Coast counties	1,172	424	472	198	21	62	569	70	284	180	6	9
Interior counties	1,115	408	394	181	33	99	538	51	248	214	6	19
Central California	10,409	3,491	4,496	1,496	204	732	6,023	687	2,834	2,387	85	59
San Francisco	3,715	1,307	1,560	550	68	230	2,075	241	922	860	41	10
Other bay counties	2,151	576	1,064	346	49	86	1,564	164	607	670	21	15

Coast counties	1,267	400	535	188	66	815	104	868	324	8	11
Interior counties	3,806	1,208	1,277	402	850	1,568	148	840	533	15	36
Southern California	6,619	1,770	3,898	980	443	4,430	597	2,281	1,464	57	51
Los Angeles	4,388	1,150	2,310	654	210	3,143	448	1,578	1,042	41	34
Other counties	2,231	620	1,088	276	233	1,237	149	683	422	16	17
Northern and Central California	12,606	4,323	5,352	1,870	883	7,119	778	3,866	2,791	97	87
Coast counties	3,275	2,707	3,681	1,237	444	5,013	579	2,272	2,044	76	42
Interior counties	4,421	1,610	1,671	583	449	2,106	199	1,094	747	21	45
Metropolitan area	5,836	1,883	2,624	896	316	3,639	405	1,620	1,530	62	22
Rural counties	6,800	2,440	2,728	974	577	3,480	873	1,746	1,261	35	65

TABLE 27.—Per Cent Distribution, by Marital Condition, of Male and Female Decedents 15 Years and Over, for Geographic Divisions: 1915 and 1914.

Geographic division	Per cent of decedents 15 years and over																			
	Males								Females											
	Single	Married	Widowed	Divorced	Unknown	Single	Married	Widowed	Divorced	Unknown	Single	Married	Widowed	Divorced	Unknown					
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914		
The State	31.4	31.5	45.5	45.3	15.0	14.5	1.8	1.8	6.3	6.9	12.0	11.9	46.7	48.7	39.1	36.9	1.4	1.3	0.8	1.2
Northern California	36.7	36.4	38.1	37.9	15.6	16.3	2.4	2.4	7.2	7.0	8.5	11.0	48.5	48.5	40.2	36.8	1.5	1.1	1.3	2.6
Coast counties	34.3	36.2	39.8	40.3	16.9	16.4	2.4	1.8	6.6	5.3	9.6	12.5	47.7	50.8	39.6	34.0	1.4	1.1	1.7	1.6
Interior counties	39.3	36.6	36.2	35.3	14.2	16.2	2.5	3.0	7.8	8.9	7.2	9.5	49.3	46.1	41.0	39.8	1.7	1.1	0.8	3.5
Central California	33.5	33.5	43.4	43.1	14.3	14.4	1.8	2.0	7.0	7.0	12.4	10.9	44.7	47.1	40.7	39.6	1.4	1.4	0.8	1.0
San Francisco	35.1	35.2	42.3	42.0	14.1	14.8	1.7	1.8	6.9	6.2	14.4	11.6	41.5	44.5	41.6	41.4	1.8	2.0	0.8	0.5
Other bay counties	27.8	27.2	49.4	50.2	17.5	16.3	1.8	2.3	3.5	4.0	12.6	10.5	43.8	44.2	42.1	42.8	1.0	1.3	0.5	0.8
Coast counties	31.3	31.6	45.8	46.2	17.8	15.6	1.5	1.4	3.6	5.2	12.1	12.8	43.0	45.1	42.4	39.8	1.6	1.0	0.9	1.3
Interior counties	36.3	36.5	39.9	38.6	11.0	12.2	2.0	2.1	10.8	10.6	9.5	9.4	51.2	53.9	37.1	34.0	1.1	1.0	1.1	1.7
Southern California	26.3	26.6	51.3	51.3	15.8	14.1	1.7	1.3	4.9	6.7	12.2	13.5	49.1	51.0	36.6	38.0	1.4	1.8	0.7	1.2
Los Angeles	26.0	26.2	51.9	52.6	16.9	14.9	1.8	1.5	3.4	4.8	11.4	14.3	49.0	50.2	37.6	33.1	1.4	1.3	0.6	1.1
Other counties	26.7	27.3	49.9	49.8	13.4	12.4	1.7	1.1	8.3	10.4	14.1	11.6	49.3	53.1	34.1	32.8	1.3	1.2	1.2	1.3
Northern and Central California	34.1	34.1	42.5	42.2	14.5	14.7	1.9	2.0	7.0	7.0	11.8	10.9	45.8	47.3	40.6	39.2	1.4	1.4	0.9	1.2
Coast counties	32.5	32.7	44.3	44.5	16.0	15.5	1.8	1.9	5.4	5.4	13.0	11.6	43.1	45.3	41.6	40.8	1.5	1.5	0.8	0.8
Interior counties	37.1	36.5	38.9	37.8	11.8	13.2	2.2	2.3	10.0	10.2	9.0	9.5	50.7	51.9	38.1	35.5	1.2	1.0	1.0	2.1
Metropolitan area	32.5	32.3	44.9	45.0	15.3	15.3	1.7	2.0	5.6	5.4	13.6	11.1	40.0	44.5	44.3	42.1	1.4	1.7	0.7	0.6
Rural counties	35.5	35.6	40.4	39.8	13.8	14.2	2.1	2.0	8.2	8.4	9.8	10.7	51.1	50.2	36.6	36.2	1.4	1.0	1.1	1.9

Exclusive of children under 15 years of age, the male decedents in California in 1915 and 1914 totaled 20,394 and 19,315, while the females numbered 12,463 and 11,549, respectively. Table 26 shows that the marital condition of the male decedents aged 15 years and over was as follows in 1915 and 1914, respectively: Single, 6,408 and 6,082; married, 9,275 and 8,750; widowed, 3,049 and 2,800; divorced, 376 and 347; and unknown, 1,286 and 1,336. For the female decedents, 15 years and over, the distribution each year was: Single, 1,492 and 1,375; married, 5,824 and 5,627; widowed, 4,872 and 4,255; divorced, 172 and 154; and unknown, 103 and 138.

It appears from Table 27 that the per cent distribution by marital condition for male and female decedents was as follows in 1915 and 1914, respectively: Single, 31.4 and 31.5 for males against only 12.0 and 11.9 for females; married, 45.5 and 45.3 for males against 46.7 and 48.7 for females; widowed, only 15.0 and 14.5 for males against 39.1 and 36.9 for females; divorced, 1.8 each year for males against 1.4 and 1.3 for females; and unknown, 6.3 and 6.9 for males against only 0.8 and 1.2 for females. Data on deaths by marital condition are available for California only for 1913 to 1915, inclusive, the annual average per cents for the three-year period being as follows: Single, males, 31.8 and females merely 12.1; married, males 45.0 and females 47.8; widowed, males merely 14.8 and females 37.7; divorced, males 1.7 and females 1.3; and unknown, males 6.7 and females merely 1.1. The proportion married is nearly the same among men as among women. However, the proportion single is much greater among men than among women while, on the other hand, the proportion widowed is much less for men than for women.

Reference to Table 27 indicates that in both 1915 and 1914 the per cents single among men were much higher for the territory north of Tehachapi than for that to the south. The per cents for single men were somewhat less for the metropolitan area than for the rural counties north of Tehachapi, but were much greater for San Francisco than for the other bay counties.

The per cents single among women vary comparatively little for different geographic divisions, being only slightly greater for southern California than for northern and central California together, for the metropolitan area than for the rural counties north of Tehachapi, and for San Francisco than for the adjacent suburban counties.

The proportion of married men among decedents was considerably greater for the territory south of Tehachapi than for that to the north. The proportion of married men was considerably greater for the metropolitan area than for the rural counties north of Tehachapi, but was much less for San Francisco than for the adjoining bay counties.

The proportion of married women varies relatively little among geographic divisions, the per cents being slightly greater for southern California than for the territory north of Tehachapi, but somewhat less for the metropolitan area than for the rural counties, and slightly less for the metropolis proper than for the adjoining suburbs.

The proportion of widowers among decedents was slightly greater in general for the territory south of Tehachapi than for that to the north as well as for the metropolitan area than for the rural counties, but was much less for San Francisco alone than for the group of other bay counties.

The proportion of widows among decedents was somewhat greater for the territory north of Tehachapi than for that to the south, in contradistinction from the opposite contrast between north and south for widowers. However, the proportion of widows, like that of widowers, was somewhat greater for the metropolitan area than for the rural counties north of Tehachapi though less for the metropolis proper than for the suburban counties.

Causes of Death.—Tables 28 and 29 present numbers and per cents, respectively, showing the deaths from twelve selected causes of males and females 15 years and over classified by marital condition for California as a whole in both 1915 and 1914.

TABLE 28.—Deaths from Selected Causes of Males and Females 15 Years and Over, Classified by Marital Condition, for California, 1915 and 1914.

Cause of death	Deaths 15 years and over											
	Males					Females						
	Total	Single	Married	Widowed	Divorced	Unknown	Total	Single	Married	Widowed	Divorced	Unknown
1915.												
All causes	20,394	6,408	9,275	3,049	276	1,286	12,463	1,403	5,394	4,373	173	108
Typhoid fever	167	84	71	2	-----	10	66	17	40	7	2	-----
Other epidemic diseases	177	51	79	33	5	5	145	13	67	65	-----	-----
Tuberculosis	3,334	1,702	1,241	201	22	183	1,652	440	967	210	24	11
Cancer	1,360	276	715	204	22	43	1,406	125	776	566	23	6
Diseases of nervous system	1,822	411	985	298	37	91	1,338	135	550	613	30	10
Diseases of circulatory system	4,365	975	2,142	938	74	222	2,760	218	1,003	1,485	20	24
Diseases of respiratory system	1,747	560	717	343	28	94	1,116	113	435	547	11	10
Diseases of digestive system	1,222	374	621	156	15	56	805	97	398	294	8	8
Bright's disease and nephritis	1,672	404	858	319	30	61	944	81	442	398	14	9
Suicide	868	235	328	63	25	157	167	32	94	27	9	5
Other violence	2,198	887	846	158	50	257	470	84	213	159	10	5
All other causes	1,482	389	672	235	33	103	1,514	137	840	501	21	15
1914.												
All causes	19,315	6,082	8,750	2,800	347	1,336	11,549	1,375	5,627	4,255	154	138
Typhoid fever	228	113	97	4	4	10	83	16	61	3	1	2
Other epidemic diseases	160	41	78	33	2	6	150	18	70	57	3	2
Tuberculosis	3,213	1,631	1,109	187	45	181	1,600	432	963	181	19	10
Cancer	1,264	297	723	208	22	44	1,408	96	770	506	23	13
Diseases of nervous system	1,832	458	992	332	38	112	1,299	122	544	589	19	25
Diseases of circulatory system	3,902	875	1,866	841	75	215	2,407	193	904	1,256	22	27
Diseases of respiratory system	1,456	422	646	280	24	104	911	90	392	438	8	13
Diseases of digestive system	1,207	350	623	152	22	60	770	101	332	270	7	10
Bright's disease and nephritis	1,493	341	784	287	29	52	839	88	448	337	7	9
Suicide	771	272	312	63	13	116	141	21	90	22	6	2
Other violence	2,204	912	792	155	35	340	461	76	296	133	14	12
All other causes	1,485	400	663	293	33	96	1,430	117	812	463	25	13

TABLE 29.—Per Cent Distribution by Marital Condition, of Deaths from Selected Causes, of Males and Females 15 Years and Over, for California: 1915 and 1914.

Cause of death	Per cent of decedents 15 years and over													
	Males							Females						
	Single	Married	Widowed	Divorced	Unknown	Single	Married	Single	Married	Widowed	Divorced	Unknown	Single	Married
All causes	31.4	31.5	45.5	45.3	15.0	14.5	1.8	1.8	6.3	6.9	12.0	11.9	46.7	48.7
Typhoid fever	50.3	49.6	42.5	42.5	1.2	1.8	-----	1.7	6.0	4.4	25.8	19.8	60.6	73.5
Other epidemic diseases	28.8	25.6	44.6	48.8	18.7	20.6	2.8	1.3	5.1	3.7	9.0	12.0	46.2	46.7
Tuberculosis	50.3	50.8	36.7	36.4	5.9	5.8	1.7	1.4	5.4	5.6	26.6	27.0	58.5	59.9
Cancer	21.9	21.1	56.7	57.6	16.2	16.1	1.8	1.7	8.4	3.5	8.4	6.8	51.9	54.7
Diseases of nervous system	22.6	23.7	54.1	51.8	16.3	17.2	2.0	2.0	5.0	5.8	10.1	9.4	41.1	41.9
Diseases of circulatory system	22.2	22.4	44.6	48.6	22.8	21.6	1.7	1.9	5.1	5.5	7.9	8.2	36.5	37.6
Diseases of respiratory system	32.1	29.0	41.0	44.4	19.9	17.9	1.6	1.6	5.4	7.1	10.1	9.9	39.0	32.7
Diseases of digestive system	30.6	29.0	59.8	51.6	12.8	12.6	1.2	1.8	4.5	5.0	12.1	13.1	49.4	49.6
Bright's disease and nephritis	24.2	22.8	51.3	52.5	19.1	19.2	1.8	2.0	3.6	3.5	8.6	9.9	46.8	50.4
Stroke	34.0	35.3	37.8	40.5	7.2	6.9	2.9	2.8	18.1	15.0	19.1	14.9	58.8	63.8
Other violence	40.3	41.4	38.5	34.6	7.3	7.0	2.3	1.6	11.7	15.4	17.9	16.5	45.1	49.0
All other causes	26.3	26.9	45.3	44.7	19.2	19.7	2.3	2.2	7.0	6.5	9.0	8.2	56.5	56.8

It appears from Table 29, giving the per cent distribution, that in both 1915 and 1914 the per cents of single men among decedents were above the general averages of 31.4 and 31.5 for deaths from the following causes: Tuberculosis, 50.3 and 50.8; typhoid fever, 50.3 and 49.6; miscellaneous violence, 40.3 and 41.4; and suicide, 34.0 and 35.3.

The per cents single among women were likewise above the general averages of 12.0 and 11.9 for these same causes, and one other, as follows: Tuberculosis, 26.6 and 27.0; typhoid fever, 25.8 and 19.3; miscellaneous violence, 17.9 and 16.5; suicide, 19.1 and 14.9; and also diseases of the digestive system, 12.1 and 13.1.

The proportion of married men among decedents, as compared with the annual average per cents of 45.5 and 45.3, was particularly high for the following causes of death: Cancer, 56.7 and 57.6; diseases of the nervous system, 54.1 and 51.3; Bright's disease and nephritis, 51.3 and 52.5; diseases of the digestive system, 50.8 and 51.6; and diseases of the circulatory system, 48.7 and 48.6.

The proportion of married women among decedents, in comparison with the averages of 46.7 and 48.7, was especially great for the following causes: Typhoid fever, 60.6 and 73.5; tuberculosis, 58.5 and 59.9; suicide, 56.3 and 63.8; sundry miscellaneous causes, 55.5 and 56.8; cancer, 51.9 and 54.7; diseases of the digestive system, 49.4 and 49.6; and Bright's disease and nephritis, 46.8 and 50.4.

The per cents for widowers exceeded the averages of 15.0 and 14.5 in the following important instances: Diseases of the circulatory system, 22.3 and 21.6; sundry miscellaneous causes, 19.2 and 19.7; diseases of the respiratory system, 19.9 and 17.9; Bright's disease and nephritis, 19.1 and 19.2; sundry epidemic diseases, 18.7 and 20.6; diseases of the nervous system, 16.3 and 17.2; and cancer, 16.2 and 16.1.

The per cents for widows surpassed the averages of 39.1 and 36.9 in notable instances as follows: Diseases of the circulatory system, 54.0 and 52.2; diseases of the respiratory system, 49.0 and 48.1; diseases of the nervous system, 45.8 and 45.3; sundry epidemic diseases, 44.8 and 38.0; and Bright's disease and nephritis, 42.2 and 37.9.

OCCUPATIONS AND CAUSES OF DEATH.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown, the figures being for the whole state in both 1915 and 1914.

TABLE 30.—Deaths 15 Years and Over Classified by Sex and Occupation, with Per Cents by Sex, for California: 1915 and 1914.

	Deaths						Per cent male		Per cent female	
	Total		Male		Female					
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
15 years and over.....	32,857	30,864	20,394	19,315	12,463	11,549	62.1	62.6	37.9	37.4
Occupations reported ---	18,778	17,859	17,600	16,673	1,178	1,186	98.7	98.4	6.3	6.6
No gainful occupation....	14,079	13,005	2,794	2,642	11,285	10,363	19.8	20.3	80.2	79.7

Exclusive of children under 15 years of age, who would all be without gainful occupation in statistical terminology, the decedents aged 15 years and over totaled 32,857 in 1915 and 30,864 in 1914. The males numbered 20,394 and 19,315 in 1915 and 1914, and the females numbered 12,463 and 11,549. Among all decedents aged 15 years and over the per cents male were 62.1 in 1915 and 62.6 in 1914, while the per cents female were 37.9 and 37.4 respectively. It may be added that for 1911 to 1915, among decedents of 15 years and over, the annual average per cent male was 62.9, and the per cent female was 37.1.

Of the decedents 15 years and over for whom occupations were reported (totaling 18,778 and 17,859 in 1915 and 1914, respectively), the males numbered 17,600 in 1915 and 16,673 in 1914, while the females numbered only 1,178 and 1,186, respectively. Among decedents with occupations reported the per cents male in 1915 and 1914 were no less than 93.7 and 93.4 while the per cents female were merely 6.3 and 6.6. Similarly, among decedents with occupations the annual average per cent male in 1911 to 1915 was as great as 93.8 and the per cent female was merely 6.2.

Of the decedents 15 years and over without gainful occupation (totaling 14,079 and 13,005 in 1915 and 1914, respectively), the men were merely 2,794 in 1915 and 2,642 in 1914, while the women (housewives and others not working for wages) were no less than 11,285 and 10,363, respectively. Among decedents without gainful occupation the per cents male in 1915 and 1914, respectively, were only 19.8 and 20.3 while the per cents female were as great as 80.2 and 79.7. In 1911 to 1915, likewise, the annual average per cent male among decedents without gainful occupation was only 20.7 and the per cent female was no less than 79.3.

Main Kinds of Occupation.—The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupations, the data being for California in both 1915 and 1914 together with annual average per cents for 1911 to 1915 in addition:

TABLE 31.—Deaths of Males 15 Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: 1915 and 1914.

Kind of occupation	Males 15 years and over				Annual average per cent: 1911 to 1915
	Deaths		Per cent		
	1915	1914	1915	1914	
All occupations -----	17,600	16,673	100.0	100.0	100.0
Professional -----	1,138	906	6.4	5.8	5.7
Clerical and official.....	1,413	1,276	8.0	7.7	7.6
Mercantile and trading.....	1,190	1,286	6.8	7.7	7.5
Public entertainment	409	392	2.3	2.3	2.3
Personal service, police and military.....	522	578	3.0	3.5	3.1
Laboring and servant	3,752	3,470	21.3	20.8	21.3
Manufacturing and mechanical industry.....	3,657	3,402	20.8	20.4	20.5
Agriculture, transportation and other outdoor.....	5,447	5,178	31.0	31.1	31.4
All other occupations -----	77	125	0.4	0.7	0.7

For 1915 and 1914, respectively, the male decedents for whom occupations were shown totaled 17,600 and 16,673 and were distributed by main kinds of occupations as follows: Agriculture, transportation and other outdoor pursuits, 5,447 and 5,178 or 31.0 and 31.1 per cent; laboring and servant work, 3,752 and 3,470 or 21.3 and 20.8 per cent; manufacturing and mechanical industry, 3,657 and 3,402 or 20.8 and 20.4 per cent; clerical and official positions, 1,413 and 1,276 or 8.0 and 7.7 per cent; mercantile and trading occupations, 1,190 and 1,286 or 6.8 and 7.7 per cent; professional callings, 1,133 and 966 or 6.4 and 5.8 per cent; and various minor kinds of occupations, altogether 1,108 and 1,095 or 5.7 and 6.5 per cent. Similarly, the annual average per cents for 1911 to 1915 were: Agriculture, transportation and other outdoor pursuits, 31.4; laboring and servant work, 21.2; manufacturing and mechanical industry, 20.5; clerical and official positions, 7.6; mercantile and trading occupations, 7.5; professional callings, 5.7; and various minor kinds of occupations, 6.1.

Causes of Death and Specific Occupations.—Tables 38 and 39, *post*, which are presented for reference among detailed or general tables following this text discussion of deaths, give in detail the numbers and per cent distribution, by selected causes, of deaths of males and females 15 years and over, classified by occupation, for California in both 1915 and 1914. The per cent distributions thus shown are presented not only for the main kinds of occupations but also, under each main kind of occupation, for every specific occupation showing at least 50 deaths in the state as a whole in the calendar year covered.

Reference to the per cent distributions given in Tables 38 and 39, *post*, for 1915 and 1914, respectively, shows that among all decedents 15 years and over the per cent of deaths from typhoid fever was 0.7 in 1915 and 1.0 in 1914, the per cents being 0.8 and 1.2 among men but only 0.5 and 0.7 among women of the age stated. In 1915 and 1914, respectively, the per cents of deaths from typhoid fever were notably high for the following occupations of men: Butchers 3.8 and 3.5; plumbers and gas and steamfitters, 3.6 and 1.0; sailors, pilots and oystermen, 1.1 and 2.3; bookkeepers, clerks and copyists, 1.6 each year; machinists, 1.5 and 1.4; laborers (not agricultural), 1.3 and 1.4; farmers, planters and farm laborers, 1.2 each year; and masons (brick and stone), 1.2 and 1.1. Among women the per cents of deaths from typhoid fever were particularly great for nurses and midwives, 3.5 in 1915 and 1.2 in 1914.

The "great white plague," tuberculosis, caused 15.3 per cent of all deaths at 15 years and over in 1915 and 15.6 per cent in 1914, the per cents being 16.6 each year for men and 13.3 and 13.9 for women of potential working age. The per cents were 17.2 and 17.4 among men for whom occupations were reported as compared with only 12.5 and 11.6 for men without gainful occupation, and were likewise 18.5 and 19.3 among women wage earners against only 12.7 and 13.2 for housewives and other nonworkers.

The per cents of deaths from tuberculosis exceeded the averages of 17.2 and 17.4 among men at work for several specific occupations in both 1915 and 1914 as follows: Barbers and hairdressers, 31.3 and 26.7; servants, waiters, cooks, 25.1 and 25.2; bookkeepers, clerks and copyists, 26.4 and 25.9; engineers and surveyors, 28.6 and 26.2; tailors, 23.2 and 27.9; plumbers and gas and steamfitters, 22.9 and 27.3; musicians and teachers of music, 21.9 and 26.2; laborers (not agricultural), 22.3 each year; architects, artists and teachers of art, 27.9 and 19.2; draymen, hackmen and teamsters, 22.5 and 19.1; iron and steel workers, 24.5 and 18.9; saloonkeepers, liquor dealers, bartenders and restaurant keepers, 19.5 and 21.9; miners and quarrymen, 19.9 and 19.4; cabinetmakers and upholsterers, 17.6 and 17.9; composers, printers and pressmen, 17.4 and 27.4; and engineers and firemen (not locomotive), 17.4 and 18.3. For women workers the per cents of deaths from tuberculosis were 26.2 and 40.0 among bookkeepers, clerks and copyists in 1915 and 1914, respectively.

On the other hand, the per cents of deaths from tuberculosis were very low indeed in both 1915 and 1914 for men engaged in the following occupations: Policemen, watchmen and detectives, 6.6 and 8.7; clergymen, 7.2 and 7.7; lawyers, 9.2 and 9.0; bankers, brokers and officials of companies, 9.1 and 9.3; farmers, planters and farm laborers, 10.3 and 9.0; stockraisers, herders and drovers, 10.5 and 12.0; merchants and dealers, 10.6 and 9.8; physicians and surgeons, 9.9 and 12.0; hotel and boarding-house keepers, 11.3 and 8.5; gardeners, florists, nurserymen and vinegrowers, 11.9 and 9.4; lumbermen and raftsmen, 8.2 and 12.2; soldiers, sailors and marines (U. S.), 10.3 and 12.8; and blacksmiths, 12.5 and 12.7.

The per cents of deaths produced by cancers were 8.4 and 8.7 in 1915 and 1914 for all decedents aged 15 years and over, being only 6.2 and 6.6 among men but no less than 12.0 and 12.2 among women. For men, the per cents of deaths from cancer were notably high among hotel and boarding-house keepers, 10.4 and 8.5; bankers, brokers and officials of companies, 10.3 and 6.9; lawyers, 7.5 and 10.5; butchers, 8.5 and 15.1; blacksmiths, 9.6 and 7.6; gardeners, florists, nurserymen and vinegrowers, 9.7 and 8.9; farmers, planters and farm laborers, 7.8 and 8.8; masons (brick and stone), 8.3 and 7.8; carpenters, 7.5 and 9.4; merchants and dealers, 7.6 and 7.8; sailors, pilots and oystermen, 7.6 and 7.7; clergymen, 7.2 and 7.7; and miners and quarrymen, 7.0 and 7.3. For women, the per cents of deaths from cancer were 12.0 and 13.4 among teachers in schools in 1915 and 1914, respectively.

The per cents for diseases of the circulatory system (heart disease, etc.) were 21.7 and 20.4 in 1915 and 1914 among all decedents 15 years and over, being 21.5 and 20.2 among men and 22.1 and 20.8 among women. The per cents were particularly great for the following specific occupations of men: Bankers and brokers, 29.8 and 32.3; physicians and surgeons, 28.1 and 21.5; lawyers, 26.4 and 28.4; clergymen, 24.8 and 29.5; architects, artists and teachers of art, 23.5

and 24.7; merchants and dealers, 26.9 and 22.0; hotel and boarding-house keepers, 23.6 and 28.0; collectors, auctioneers and agents, 23.8 and 21.2; masons (brick and stone), 27.4 and 25.6; gardeners and nurserymen, 26.4 and 22.2; farmers and planters, 23.2 and 24.9; stock-raisers, herders and drovers, 24.0 and 22.5; tailors, 23.2 and 21.3; cabinetmakers and upholsterers, 21.6 and 25.0; and policemen, watchmen and detectives, 22.8 and 22.5. Among women wage earners the per cents of deaths from heart disease were 23.6 and 17.6 for servants and 22.6 and 18.8 for dressmakers and seamstresses.

The per cents for Bright's disease and nephritis, occurring often with heart disease, were 8.0 and 7.7 in 1915 and 1914 for all decedents 15 years and over, being 8.2 and 7.7 among men and 7.6 and 7.7 among women. The per cents were notably high for men engaged in the following occupations: Lawyers, 16.1 and 12.7; boot and shoe makers, 13.7 and 15.4; musicians and teachers of music, 13.7 and 12.3; masons (brick and stone), 13.1 and 12.2; compositors, printers and pressmen, 11.2 and 11.9; clergymen, 11.1 and 9.3; merchants and dealers, 10.4 and 10.1; collectors and agents, 10.6 and 8.4; hotel and boarding-house keepers, 8.5 and 11.8; plumbers and gas and steam-fitters, 9.6 and 9.1; farmers and planters, 9.3 and 9.0; and steam railroad employees, 8.4 and 8.0. For women workers, the per cents of deaths from Bright's disease and nephritis were 7.1 and 8.2 among dressmakers and seamstresses in 1915 and 1914, respectively.

For diseases of the nervous system the per cents in 1915 and 1914 were 9.6 and 10.5 for all decedents, 8.9 and 10.0 for males, and 10.7 and 11.2 for females. The per cents were particularly great among men in the following occupations: Clergymen, 12.4 and 17.1; painters, glaziers and varnishers, 14.1 and 12.0; bankers and brokers, 13.6 and 10.3; physicians and surgeons, 8.9 and 14.6; lawyers, 11.5 and 11.9; tailors, 12.0 and 11.0; merchants and dealers, 10.1 and 12.7; architects, artists and teachers of art, 10.3 and 11.0; collectors and agents, 10.0 and 10.8; barbers and hairdressers, 12.2 and 10.0; compositors, printers and pressmen, 12.2 and 9.5; carpenters, 9.8 and 11.1; stockraisers, herders and drovers, 9.7 and 11.7; farmers and planters, 9.7 and 11.3; gardeners and nurserymen, 9.3 and 12.2; and sailors and pilots, 9.4 and 11.2. The per cents were 8.3 and 14.4 for school teachers among women workers.

For diseases of the respiratory system, the per cents in 1915 and 1914 were 8.7 and 7.7 for all decedents, 8.6 and 7.5 for men, and 8.9 and 7.9 for women. The per cents were notably high for the following occupations of men: Clergymen, 12.4 and 10.1; boot and shoe makers, 14.7 and 8.5; hucksters and peddlers, 10.3 and 8.6; saloon keepers and restaurant keepers, 10.2 and 8.0; soldiers, sailors and marines (U. S.), 9.7 and 12.2; farmers and planters, 9.8 and 9.5; draymen, hackmen and teamsters, 8.5 and 8.8; and laborers (not agricultural), 8.7 and 7.9. Among women workers, the per cents were 9.0 and 10.6 for school teachers, 10.6 and 8.0 for servants, and 9.5 and 8.3 for dressmakers and seamstresses.

For diseases of the digestive system, the per cents in 1915 and 1914 were 6.2 and 6.4 among all decedents, 6.0 and 6.3 among men, and 6.5 and 6.7 among women. The per cents were notably high for men in the following occupations: Saloon keepers and restaurant keepers, 8.9 and 7.7; barbers and hairdressers, 9.6 and 6.7; blacksmiths, 7.8 and 10.1; collectors and agents, 6.7 and 7.8; merchants and dealers, 6.2 and 8.4; compositors, printers and pressmen, 6.1 and 8.3; stockraisers, herders and drovers, 6.4 and 7.6; draymen, hackmen and teamsters, 6.9 and 6.4; and farmers and planters, 6.2 and 7.0. The per cents were 14.8 and 12.9 for clerks and copyists and 8.9 and 9.3 for nurses and midwives among women wage earners.

Suicides formed 3.2 per cent of all deaths at 15 years and over in 1915 and 3.0 per cent in 1914, the per cents being 4.2 and 4.0 among men and 1.3 and 1.2 among women of potential working age. The per cents of suicides were 4.2 and 3.9 for men with occupations reported as compared with 4.7 and 4.6 for those not working or on the retired list. Among women, however, the per cents of suicides were greater for wage earners, 2.9 and 1.9, than for housewives and others without gainful occupation, 1.2 each year.

The occupations of men equalling or exceeding the average per cents of 4.2 and 3.9 for suicides were as follows: Soldiers, sailors and marines (U. S.), 9.0 and 5.4; bakers, 7.4 and 8.5; barbers and hairdressers, 8.7 and 4.2; saloon keepers and restaurant keepers, 6.6 and 8.0; collectors and agents, 5.8 and 7.5; policemen, watchmen and detectives, 7.4 and 5.1; servants (waiters, cooks), 5.5 and 5.7; carpenters, 6.0 and 4.4; painters, glaziers, and varnishers, 6.3 and 4.2; blacksmiths, 5.4 and 4.4; butchers, 4.7 and 5.8; hotel and boarding-house keepers, 4.7 and 5.1; engineers and firemen (not locomotive), 4.7 and 4.5; laborers (not agricultural), 4.5 and 4.6; and draymen, hackmen and teamsters, 5.3 and 3.9. Among women reporting gainful occupations, the per cents of suicides were quite high for nurses and midwives, 5.3 and 3.5.

For deaths from violence other than suicide, the per cents in 1915 and 1914 were 8.1 and 8.6 for all decedents 15 years and over, being as great as 10.8 and 11.4 among men but only 3.8 and 4.0 among women of this age. For each sex, especially females, the proportion dying from accidental injuries was greater among those reporting occupations than among those without gainful occupation. The per cents were 10.9 in 1915 and 11.6 in 1914 for men workers against 10.2 and 10.1 for men not employed, and were 7.0 and 7.6 for women wage earners as compared with 3.4 and 3.6 for housewives and other nonworkers.

The occupations of men with more than the average per cents of 10.9 and 11.6 for deaths from miscellaneous violence were as follows: Lumbermen and raftsmen, 24.6 and 28.2; steam railroad employees, 23.6 and 21.4; hucksters and peddlers, 17.7 and 15.5; sailors and pilots, 15.6 and 20.1; draymen, hackmen and teamsters, 15.3 and 19.1; policemen, watchmen and detectives, 15.4 and 18.1; laborers (not agricultural), 15.5 and 17.6; soldiers, sailors and marines (U. S.), 17.2 and 15.5; engineers and firemen (not locomotive), 13.6 and 14.3;

machinists, 13.2 and 13.3; engineers and surveyors, 11.8 and 15.2; and miners and quarrymen, 13.2 and 11.8.

On the other hand, the occupations of men with remarkably small per cents of deaths from accidents were the following: Clergymen, 3.3 and 2.3; lawyers, 4.0 and 3.0; composers, printers and pressmen, 4.1 and 6.0; bankers and brokers, 5.8 and 4.9; masons (brick and stone), 5.9 and 4.4; architects, artists and teachers of art, 5.9 and 6.8; butchers, 6.6 and 3.5; boot and shoemakers, 7.9 and 1.7; merchants and dealers, 7.9 and 5.6; bookkeepers, clerks and copyists, 6.3 and 6.5; barbers and hairdressers, 6.9 and 5.0; saloon keepers and restaurant keepers, 6.9 and 7.7; and musicians and teachers of music, 6.8 and 7.7 in 1915 and 1914, respectively.

TABLE 32.—Deaths From Each Specified Disease and Class of Diseases.

Cause of death	Total deaths	Male	Female	White	Negro	Indian	Chinese
ALL CAUSES	39,026	23,871	15,155	36,890	563	139	751
I. GENERAL DISEASES	11,213	6,575	4,638	10,489	200	54	273
1. Typhoid fever	276	192	84	254	3	3	6
2. Typhus fever							
3. Relapsing fever							
4. Malaria	45	29	16	41		1	1
5. Smallpox	3	1	2	3			
6. Measles	132	72	60	128	1	1	2
7. Scarlet fever	53	27	26	51	1		1
8. Whooping-cough	124	48	76	117	1	1	
9. (a) Diphtheria	290	146	153	297	1		
(b) Croup	11	5	6	11			
10. Influenza	181	96	85	177	1		
11. Miliary fever							
12. Asiatic cholera							
13. Cholera nostras							
14. Dysentery	50	26	24	48			1
15. Plague	1	1		1			
16. Yellow fever							
17. Leprosy	3	3		1			2
18. Erysipelas	58	38	20	56	1		
19. Other epidemic diseases	5	5		4	1		
20. Purulent infection and septicæmia	61	40	21	55			2
21. Glanders							
22. Anthrax	2	2		2			
23. Rabies	6	3	3	6			
24. Tetanus	22	19	3	21	1		
25. Mycoses	6	3	3	6			
26. Pellagra	23	9	19	28			
27. Beriberi	3	2	1	1			1
<i>Tuberculosis.</i>							
28. Tuberculosis of the lungs	4,762	3,200	1,562	4,336	136	31	180
29. Acute miliary tuberculosis	126	66	60	118	6		2
30. Tuberculous meningitis	323	183	140	282	5	1	7
31. Abdominal tuberculosis	204	98	106	173	4	5	6
32. Pott's disease	32	24	8	32			
33. White swellings	21	12	9	20	1		
34. Tuberculosis of other organs	66	46	20	64	1	1	
35. Disseminated tuberculosis	27	16	11	25	1	1	
36. Rickets	11	6	5	10			1
37. Syphilis	245	166	80	214	8	1	13
38. Gonococcus infection	6	4	2	5	1		
<i>Cancer.</i>							
39. Cancer* of the buccal cavity	93	87	6	91	2		
40. Cancer* of the stomach, liver	1,121	636	485	1,079	7	5	17
41. Cancer* of the peritoneum, intestines, rectum	349	153	196	339	3		4
42. Cancer* of the female genital organs	378		378	371	6		1
43. Cancer* of the breast	240		240	236	1		2
44. Cancer* of the skin	108	79	29	107			
45. Cancer* of other or unspecified organs	487	316	171	470	4	2	9
46. Other tumors (except of female genital organs)	7	1	6	6	1		
47. Acute articular rheumatism	99	58	41	98			1
48. Chronic rheumatism and gout	73	32	41	71			2
49. Scurvy	2	2		2			
50. Diabetes	459	229	230	447	6		5
51. Exophthalmic goitre	42	7	35	40	1		1
52. Addison's disease	11	4	7	11			
53. Leuchæmia	58	37	21	54	1		2
54. Anæmia, chlorosis	194	85	109	192			
55. Other general diseases	35	20	15	34	1		
56. Alcoholism (acute or chronic)	249	224	25	244	2	1	2
57. Chronic lead poisoning	7	6	1	7			
58. Other chronic occupation poisonings	1	1		1			
59. Other chronic poisonings	18	11	7	14			4

*Cancer and other malignant tumors.

by Sex, Race, Nativity and Age Periods, for California: 1915.

Japanese	White				Under 1 year	1 to 9 years	10 to 19 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	70 years and over
	Born in Calif.	Born in other states	Foreign born	Unknown									
663	9,235	14,905	11,761	989	3,570	2,164	1,238	3,207	4,057	4,377	5,185	5,821	9,407
188	2,773	4,339	3,201	176	364	881	572	1,556	1,762	1,664	1,639	1,475	1,300
10	108	85	58	3		29	36	83	60	31	18	14	5
2	14	19	6	2	6	10	6	3		3	4	4	9
2	2	1			1		1	1					
2	106	17	3		41	73	6	5	4	1	2		
5	37	11	2	1	3	40	5	2	2	1			
1	110	7			72	49							3
1	235	45	14	3	13	233	32	9	6	4	2		
3	10	1			2	9							
3	22	96	58	1	10	8	4	4	7	3	13	28	104
1	23	14	8		14	9		2	3	5	3	5	9
1	13	2	15		6	3		4	4	10	14	8	9
4	22	16	16	1	4	4	4	9	9	7	11	7	6
2	2	1	1					1			1		
12	2	1	1	1		5		1	1				
1	3	6	6		2	8	4	1	5	2			
6	17	4	4	1		1		2	1		3		
1	1					1	1	1	5	10	7	3	1
79	1,087	1,768	1,434	87	30	69	318	1,153	1,202	888	566	345	181
65	33	30	20		9	25	17	32	22	12	6	2	1
28	195	51	35	1	42	175	26	26	22	19	8	5	
18	81	53	39		9	38	17	45	38	15	23	13	8
10	12	10	10			3	3	7	4	7	6	2	
10	6	4			1	3	3	4	3	2	4		1
25	29	10			4	7	7	12	14	7	4	5	6
7	13	5			1	3	5	6	3	4	4	1	
9	9	1			4	6						1	
9	95	63	51	5	73	10	7	18	45	34	34	21	3
1	1	2	1	1		1		2	2	1			
10	40	41				1	1		4	9	25	23	30
13	85	489	488	17				6	39	140	236	376	324
3	37	177	121	4			1	7	24	47	87	76	107
46	227	95	3				1	4	30	89	114	80	60
1	34	133	68	1			1	1	25	54	65	45	49
1	5	73	27	2		1	1	1	2	7	15	29	52
2	70	233	166	1	2	14	6	11	40	66	113	117	118
2	2	2	2						1	3		1	2
29	41	27	1	3	17	18	9	5	9	9	9	13	16
4	37	30					2	3	11	10	19	28	
2	2				1	1							
1	49	230	163	5	1	8	21	31	32	45	83	118	116
12	20	8						9	9	8	6	8	2
3	4	4						1		2	6	2	
1	19	22	13		2	5	4	10	4	7	14	8	4
2	36	104	50	2	2	6	6	6	13	28	57	62	24
14	13	5	2	5	4	4	2	4	3	6	3	4	
48	83	83	30				20	62	64	53	31	16	
2	4	1						3	1	1	2		
2	10	1	1	1	1	1	1	1	4	5	4	2	

TABLE 32.—Deaths From Each Specified Disease and Class of Diseases.

Cause of death	Total deaths.	Male.	Female.	White.	Negro.	Indian.	Chinese.
II. DISEASES OF THE NERVOUS SYSTEM							
40. Encephalitis	3,424	1,969	1,465	3,307	28	6	4
51. (a) Simple meningitis	35	19	19	37			1
(b) Cerebrospinal meningitis (undefined)	190	111	79	173			
(c) Cerebrospinal fever	61	37	24	55	1	1	2
62. Locomotor ataxia	22	10	12	21			
71. (a) Acute anterior poliomyelitis	97	68	29	95			1
(b) Other diseases of the spinal cord	19	13	6	19			
64. Cerebral hemorrhage, apoplexy	168	90	78	162	3		2
45. Softening of the brain	1,875	1,009	866	1,821	20	2	26
61. Paralysis without specified cause	52	32	20	52			
67. General paralysis of the insane	200	104	96	194	2	2	2
68. Other forms of mental alienation	283	221	62	271	7		4
69. Epilepsy	77	44	33	73	1		3
70. Convulsions (nonpuerperal)	134	82	52	131	2	1	
71. Convulsions of infants (under 5 years)	1		1	1			
72. Chorea	19	8	11	19			
73. Neuralgia and neuritis	4	1	3	4			
74. Other diseases of the nervous system	13	6	7	13			
75. Diseases of the eyes and their annexa	137	85	52	133	2		
76. Diseases of the ears	3	2	1	3			
	31	17	14	30			
III. DISEASES OF THE CIRCULATORY SYSTEM							
77. Pericarditis	7,251	4,453	2,798	6,976	97	8	148
78. Acute endocarditis	70	52	18	63	2		5
79. Organic diseases of the heart	572	349	223	549	12		3
80. Angina pectoris	4,801	2,938	1,863	4,606	67	5	111
81. Diseases of arteries, atheroma, aneurysm, etc.	235	144	91	229	2	1	2
82. Embolism and thrombosis	1,442	891	551	1,400	13	2	27
83. Diseases of veins (varices, hemorrhoids, phlebitis, etc.)	79	46	33	77	1		
84. Diseases of the lymphatic system (lymphangitis, etc.)	22	12	10	22			
85. Hemorrhage; other diseases of the circulatory system	17	11	6	17			
	13	10	3	13			
IV. DISEASES OF THE RESPIRATORY SYSTEM							
86. Diseases of the nasal fossae	3,791	2,209	1,522	3,580	50	17	69
87. Diseases of the larynx	2	1	1	2			
88. Diseases of the thyroid body	23	11	12	22			
89. Acute bronchitis	13	2	11	13			
90. Chronic bronchitis	156	69	87	146	1	2	3
91. Broncho-pneumonia	252	133	119	240	1	2	6
92. (a) Lobar pneumonia	1,060	620	460	1,012	13	8	17
(b) Pneumonia (undefined)	1,348	868	480	1,278	28	5	25
93. Pleurisy	636	396	239	597	5		12
94. Pulmonary congestion, pulmonary apoplexy	65	42	23	62	1		
95. Gangrene of the lung	79	42	37	76			1
96. Asthma	10	8	2	10			
97. Pulmonary emphysema	97	55	42	91	1		5
98. Other diseases of the respiratory system (tuberculosis excepted)	2	2		2			
	29	20	9	29			

by Sex, Race, Nativity and Age Periods, for California: 1915—Continued.

Japanese	White				Under 1 year	1 to 9 years	10 to 19 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	70 years and over
	Born in Calif.	Born in other states	Foreign born	Unknown									
30	535	1,620	1,085	67	100	140	69	114	231	368	573	705	1,124
1	7	18	12			3	3	7	6	8	5	1	5
16	104	43	26		47	59	17	11	11	14	13	8	10
2	35	8	10	2	13	24	9	6	5	1	2	1	
1	14	5	2		5	9	2	5	1				
1	12	52	30	1			3	5	13	31	28		17
	15	4			4	11	3	1					
1	22	93	47		1	3	2	3	16	24	30	49	40
4	130	959	685	38	3	2	4	12	46	152	321	486	849
	6	26	19	1				1	1	4	9	12	25
	12	114	64	4				2	5	13	22	45	113
1	41	140	77	13		1	1	16	69	87	61	30	18
	18	24	27	4			2	10	15	15	19	11	5
	42	52	34	3	2	7	12	22	30	14	17	16	14
1						1							
19					17	2							
		3	1				1		1				2
	2	8	3				1		3		4		5
2	29	58	45	1	3	9	7	12	15	19	34	18	20
		3				1					1		1
1	17	10	3		5	8	5	3	2	4	4		
22	569	3,388	2,815	174	7	61	90	172	340	590	1,096	1,634	3,261
16	22	20	5			1	7	2	7	13	13	10	17
8	117	259	161	12	1	30	32	55	76	79	103	99	97
12	372	2,141	1,964	129		25	49	101	229	428	773	1,138	2,060
1	21	136	69	3				3	7	19	50	65	91
48	774	556	22			1	2	11	38	128	297	965	
1	6	36	3				4	8	9	19	16	23	
5	7	10				1		3	2	4	2	6	4
9	7	1			6	3	1	1		1	1	2	2
5	6	2				1		1		1	7	1	2
75	1,086	1,242	1,188	64	535	363	87	168	227	307	381	540	1,183
2						2							
1	16	4	2		6	10	1		1	2	1	1	1
		8	4					1	2	2	3	2	3
4	56	41	49		54	16		1	1	4	4	14	62
3	21	106	113	1	13	12			2	9	14	36	106
30	431	261	301	19	272	160	15	22	41	60	82	111	317
12	322	486	439	31	93	93	39	104	119	161	171	236	332
21	184	233	173	7	82	59	24	26	41	44	66	97	196
2	12	31	17	2		7	4	4	12	10	8	9	11
2	14	29	32	1	11		1	1	1	4	10	9	42
		2	4				1	2	1	1	2	2	1
11	35	43	2	4	4		1	3	3	5	13	16	48
1	1										1		1
11	6	11	1				1	4	3	5	6	7	3

TABLE 22.—Deaths From Each Specified Disease and Class of Diseases.

Cause of death	Total deaths.	Male	Female	White	Negro	Indian	Chinese
V. DISEASES OF THE DIGESTIVE SYSTEM							
100. Diseases of the mouth and annexa	15	10	5	15			
101. Diseases of the pharynx	63	39	24	60	2		1
102. Diseases of the esophagus	5	1	4	5			
103. Ulcer of the stomach	180	128	54	168	1	2	7
104. Other diseases of the stomach (cancer excepted)	194	120	74	182	9	1	1
<i>Diarrhoea.</i>							
105. Diarrhoea and enteritis (under 2 years)	795	449	346	714	6	2	9
106. Diarrhoea and enteritis (2 years and over)	415	235	180	394	5	1	4
107. Ankylostomiasis							
108. Intestinal parasites	2	1	1	2			
109. Appendicitis and typhlitis	378	236	142	378	5	1	3
110. (a) Hernia	98	54	39	91			1
111. (b) Intestinal obstruction	275	141	134	253	7	2	4
112. Other diseases of the intestines	64	30	34	60	1		2
113. Acute yellow atrophy of the liver	6	3	3	4			1
114. Hydatid tumor of the liver							
115. Cirrhosis of the liver	381	222	90	356	5		12
116. Biliary calculi	78	31	47	77			1
117. Other diseases of the liver	154	78	76	147	1		2
118. Diseases of the spleen							
119. Simple peritonitis (nonpuerperal)	37	25	12	34			1
120. Other diseases of digestive system (except cancer, tuberculosis)	24	15	9	23			1
VI. DISEASES OF THE GENITO-URINARY SYSTEM							
121. Acute nephritis	3,237	2,019	1,218	3,063	57	9	65
122. Bright's disease	200	120	80	184	5	1	5
123. Other diseases of the kidneys and annexa	2,484	1,503	981	2,369	40	7	55
124. Chyluria							
125. Other diseases of the kidneys and annexa	98	57	36	87	1	1	3
126. Calculi of the urinary passages	8	4	4	7	1		
127. Diseases of the bladder	127	106	21	126	1		
128. Diseases of the urethra, urinary abscess, etc.	9	9		9			
129. Diseases of the prostate	128	123		124	2		2
130. Nonvenereal diseases of male genital organs	2	2		2			
131. Uterine hemorrhage (nonpuerperal)	1		1	1			
132. Uterine tumor (noncancerous)	65		65	60	5		
133. Other diseases of the uterus	19		19	19			
134. Cysts and other tumors of the ovary	27		27	27			
135. Salpingitis and other diseases of female genital organs	73		73	67	2		
136. Nonpuerperal diseases of the breast (cancer excepted)	1		1	1			
VII. THE PUERPERAL STATE							
137. Accidents of pregnancy	356		356	321	7	6	1
138. Puerperal hemorrhage	73		73	68	1	2	
139. Other accidents of labor	27		27	20	1	1	
140. Puerperal septichemia	44		44	43			
141. Puerperal albuminuria and convulsions	79		79	68	2	2	1
142. Puerperal phlegmasia alba dolens, embolus, sudden death	116		116	107	3	1	
143. Following childbirth (not otherwise defined)	7		7	7			
144. Puerperal diseases of the breast	10		10	8			
VIII. DISEASES OF THE SKIN							
145. Gangrene	115	75	40	111	1		2
146. Furuncle	68	42	26	66	1		1
147. Acute abscess	15	11	4	15			
148. Other diseases of the skin and annexa	16	12	4	15			1

by Sex, Race, Nativity and Age Periods, for California: 1915—Continued.

Japanese.....	White				Under 1 year.....	1 to 9 years.....	10 to 19 years.....	20 to 29 years.....	30 to 39 years.....	40 to 49 years.....	50 to 59 years.....	60 to 69 years.....	70 years and over.....
	Born in Calif. Foreign	Born in other states	Foreign Born	Unknown									
115	1,232	957	716	38	741	350	91	188	278	301	379	360	471
8	3	5	2	2	3	3	1	3	1	3	2	2	2
35	16	6	6	3	25	8	8	6	5	4	2	5	4
2	30	71	65	2	1	8	15	34	35	36	31	25	69
1	84	82	63	3	18	7	3	7	14	16	24	36	69
64	690	18	6	—	668	127	—	—	—	—	—	—	—
11	110	169	106	9	107	7	16	35	38	39	48	125	—
2	—	—	—	—	—	—	—	—	—	—	—	—	—
11	121	145	88	4	2	39	51	80	81	51	38	25	11
1	13	32	45	1	7	2	3	4	9	16	22	30	30
9	59	94	67	3	38	29	8	17	31	30	39	33	50
1	13	26	19	2	2	3	1	11	1	13	5	10	18
1	—	3	1	—	—	—	—	—	1	1	1	2	1
8	40	160	149	7	—	1	1	7	38	68	108	83	72
—	15	34	28	—	—	1	—	1	5	7	23	23	18
4	22	68	55	2	1	4	2	14	18	18	35	21	33
2	9	20	5	—	2	1	3	6	4	3	4	9	5
—	3	10	10	—	—	—	2	2	5	4	6	2	3
23	414	1,566	1,056	47	19	45	42	139	238	395	558	686	1,115
5	62	60	57	5	11	26	14	21	23	31	25	20	29
13	276	1,214	841	38	—	14	23	78	144	295	463	586	881
1	14	44	29	—	7	4	1	8	9	12	20	13	19
—	1	3	3	—	—	—	1	—	—	4	1	1	1
—	10	81	34	1	1	1	—	1	2	4	8	21	89
—	1	6	2	—	—	—	—	1	1	3	2	2	—
—	3	63	57	1	—	—	—	—	—	3	11	31	83
—	1	1	—	—	—	—	—	—	1	1	—	—	—
—	—	1	—	—	—	—	—	—	—	1	—	—	—
—	16	31	12	1	—	—	—	—	18	21	13	6	7
—	1	12	6	—	—	—	—	4	4	4	4	2	1
—	6	15	6	—	—	—	—	2	5	7	6	3	4
4	23	35	8	1	—	—	3	24	31	9	5	1	—
—	—	—	1	—	—	—	—	—	—	—	—	—	1
21	98	120	108	—	—	—	27	164	130	35	—	—	—
2	17	34	17	—	—	—	3	36	26	8	—	—	—
5	6	7	7	—	—	—	1	10	13	3	—	—	—
1	17	10	16	—	—	—	2	17	21	4	—	—	—
6	23	21	24	—	—	—	9	46	20	4	—	—	—
5	30	46	31	—	—	—	12	49	43	12	—	—	—
—	3	1	3	—	—	—	—	2	3	2	—	—	—
2	2	1	5	—	—	—	—	4	4	2	—	—	—
1	20	50	39	2	10	3	2	6	3	9	11	12	59
—	1	36	28	1	—	—	—	1	2	2	6	6	51
—	8	7	5	—	—	—	1	2	—	5	1	2	4
—	10	3	2	—	3	3	1	1	1	1	4	2	—
1	6	4	4	1	7	—	—	2	—	1	—	2	4

TABLE 32.—Deaths From Each Specified Disease and Class of Diseases.

Cause of death	Total deaths	Male	Female	White	Negro	Indian	Chinese
IX. DISEASES OF THE BONES	57	36	21	53	2		1
146. Diseases of the bones (tuberculosis excepted)	50	31	19	47	1		1
147. Diseases of the joints (excepting tuberculosis and rheumatism)	6	5	1	5	1		
148. Amputations			1	1			
149. Other diseases of the organs of locomotion	1						
X. MALFORMATIONS	274	154	120	254	1		1
150. (a) Hydrocephalus	24	12	12	23			
(b) Congenital malformation of the heart	181	105	76	165	1		1
(c) Other congenital malformations	69	37	32	66			
XI. DISEASES OF EARLY INFANCY	1,478	862	616	1,364	24	5	13
151. (a) Premature birth (not stillborn)	874	495	379	816	13	4	9
(b) Congenital debility, "atrophy," "marasmus," etc.	328	190	129	294	7		1
152. Other diseases peculiar to early infancy	271	168	105	251	4	1	3
153. Lack of care	5	2	3	3			
XII. OLD AGE	615	227	286	496	5	6	8
154. Senility	515	227	288	496	5	6	8
XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES	4,145	3,359	786	3,902	50	19	77
155. Suicide by poison	186	125	61	181	1		1
156. Suicide by asphyxia	142	102	40	137	1		2
157. Suicide by hanging or strangulation	102	85	17	88		1	10
158. Suicide by drowning	42	39	3	39			
159. Suicide by firearms	457	420	37	439	4	1	4
160. Suicide by cutting or piercing instruments	67	62	5	61			2
161. Suicide by jumping from a high place	22	18	4	22			
162. Suicide by crushing	9	9		9			
163. Other suicides	8	8		8			
164. Poisoning by food	55	29	26	54	1		
165. Other acute poisonings	62	31	31	61			
166. Conflagration	87	46	41	81	2	1	1
167. Burns (conflagration excepted)	119	67	52	110	3	1	
168. Absorption of deleterious gases (conflagration excepted)	105	71	34	100	1	2	
169. Accidental drowning	346	317	29	322	5	2	5
170. Traumatism by firearms	82	75	7	81			1
171. Traumatism by cutting or piercing instruments	6	5	1	6			
172. Traumatism by fall	406	276	130	395	2		6
173. Traumatism in mines and quarries	52	51	1	52			
174. Traumatism by machines	55	53	2	55			
175. (a) Railroad accidents and injuries	315	291	24	301	4	2	4
(b) Street car accidents and injuries	109	83	26	102			2
(c) Automobile accidents and injuries	446	352	94	426	4		6
(d) Injuries by other vehicles	172	149	23	153	2		7
(e) Landslide, other crushing	86	82	4	84			
176. Injuries by animals	41	37	4	36			1
177. Starvation	9	8	1	8		1	
178. Excessive cold	9	7	2	9			
179. Effects of heat	24	20	4	20	2		1
180. Lightning	1	1		1			
181. Electricity (lightning excepted)	42	38	4	41			
182. Homicide by firearms	260	218	42	215	14	5	19
183. Homicide by cutting or piercing instruments	42	37	5	37		2	2
184. Homicide by other means	63	47	16	58	3		2
185. Fractures (cause not specified)	7	7		6			
186. Other external violence	109	93	16	104	1	1	1
UNED DISEASES	11	7	4	11			
187. disease							
188. ill-defined	3		3	3			
189. not specified, or unknown	8	7	1	8			

only deaths under 3 months of age.

by Sex, Race, Nativity and Age Periods, for California: 1915—Concluded.

Japanese	White				Under 1 year	1 to 9 years	10 to 19 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	70 years and over
	Born in Calif. foreign	Born in other states	Foreign born	Unknown									
1	15	23	14	1	4	6	8	4	8	8	6	9	4
1	14	19	13	1	4	6	8	4	6	7	4	7	4
	1	3	1						2	1	2	1	
		1										1	
18	250	3	1		259	13	1	1					
1	22	1			20	4							
14	163	2			177	4							
3	65		1		62	5	1	1					
72	1,357	6	1		1,478								
32	811	4	1		874								
26	292	2			328								
12	251				271								
2	3				5								
	8	289	188	11								17	498
	8	289	188	11								17	498
97	844	1,298	1,353	407	53	299	249	695	838	698	541	382	390
3	32	73	55	21			3	39	41	28	48	17	10
2	15	54	49	19			2	20	29	39	27	15	10
3	8	21	41	18			2	19	19	21	25	10	6
3	7	13	11	8				3	11	8	8	6	6
9	67	150	154	68			6	74	121	102	82	50	22
4	8	18	27	8				10	13	19	13	4	8
		9	8	5					10	1	4	5	2
		3	3	3				2	2	1	3	1	
	1	3	2	2					2	3	1		2
	28	18	8		5	12	5	3	6	8	6	5	5
1	30	25	5	1	2	23	3	7	9	9	7	1	1
2	23	30	20	8	3	27	5	9	8	10	8	10	9
5	51	35	22	2	4	42	8	18	11	6	9	9	12
2	23	25	45	7	15	1	2	10	19	14	14	15	15
12	107	70	78	67	2	55	55	56	48	55	41	20	14
	32	28	21			10	22	19	15	9	4	2	1
		2	4				1		3		1	1	
3	73	158	147	17	4	21	18	33	42	47	33	61	147
	9	13	30					11	22	14	3	1	1
	13	11	29	2		1	8	17	6	13	5	5	
4	33	108	107	58		5	16	54	93	57	40	24	26
5	18	32	48	4		12	8	10	26	11	17	10	15
10	108	181	117	25		39	35	83	80	60	55	50	35
10	33	52	60	8	1	21	8	32	30	24	22	18	16
2	13	25	40	6		6	4	21	20	22	7	3	3
4	7	14	15			6	2	4	6	3	9	7	4
	2	2	1	3	1	1		1	2	2	1	1	
	3	2	3	1				2	1	3		3	
1	3	5	9	3	2	1		2	6	4	4	4	1
		1						1					
1	11	20	8	2		2	8	11	12	7	1	1	
7	37	53	108	17	2	2	17	67	85	51	24	10	2
1	4	6	19	8			1	19	12	4	4	1	1
	13	13	28	4	6	3		15	14	9	4	8	4
1		1	3	2				2		5			
2	37	30	27	10	6	11	10	21	14	20	11	4	12
	4	4	1	2		3			2	2	1	1	2
	3					3							
	1	4	1	2					2	2	1	1	2

TABLE 33.—Deaths From Each Specified Disease, and Class of

Cause of death	Total deaths	Male	Female	White	Negro	Indian	Chinese
ALL CAUSES	37,587	22,083	14,609	35,513	569	170	637
I. GENERAL DISEASES	11,132	6,571	4,561	10,473	201	66	284
1. Typhoid fever	376	258	118	349	8	1	3
2. Typhus fever							
3. Relapsing fever							
4. Malaria	70	41	29	60	3		3
5. Smallpox	1		1	1			
6. Measles	153	77	76	150			1
7. Scarlet fever	90	54	36	89			
8. Whooping-cough	306	144	162	294			1
9. (a) Diphtheria	249	126	123	240	1		4
(b) Croup	19	11	8	19			
10. Influenza	138	71	67	129	3	1	3
11. Miliary fever							
12. Asiatic cholera							
13. Cholera nostras	1	1		1			
14. Dysentery	59	33	26	58			1
15. Plague							
16. Yellow fever							
17. Leprosy	3	3		3			
18. Erysipelas	66	38	28	65			
19. Other epidemic diseases	3	1	2	3			
20. Purulent infection and septichæmia	57	41	16	56	1		1
21. Glanders	1	1		1			
22. Anthrax	1		1	1			
23. Rabies	3	2	1	3			
24. Tetanus	23	15	13	26			
25. Mycoses	1	1		1			
26. Pellagra	23	9	19	23			
27. Beriberi	4	2	2				2
<i>Tuberculosis.</i>							
28. Tuberculosis of the lungs	4,529	3,061	1,468	4,130	130	47	164
29. Acute miliary tuberculosis	114	69	45	99	5	1	2
30. Tuberculosis meningitis	313	193	120	296		4	3
31. Abdominal tuberculosis	207	97	110	186	7	1	2
32. Pott's disease	38	26	12	34	2		2
33. White swellings	9	5	4	9			
34. Tuberculosis of other organs	73	51	22	72		1	
35. Disseminated tuberculosis	37	23	14	35		1	1
36. Rickets	11	9	2	11			
37. Syphilis	227	151	76	208	6	2	6
38. Gonococcus infection	10	4	6	8	1		1
<i>Cancer.</i>							
39. Cancer* of the buccal cavity	116	100	16	115			1
40. Cancer* of the stomach, liver	1,070	629	441	1,040	5	4	14
41. Cancer* of the peritonæum, intestines, rectum	344	166	178	339	1		1
42. Cancer* of the female genital organs	354		354	348	3		2
43. Cancer* of the breast	251		251	248	3		
44. Cancer* of the skin	108	84	24	106			2
45. Cancer* of other or unspecified organs	444	294	150	439	3		2
46. Other tumors (except of female genital organs)	11	5	6	8	1		
47. Acute articular rheumatism	71	37	34	64	3		3
48. Chronic rheumatism and gout	80	41	48	87		1	1
49. Scurvy	3	2	1	2			1
50. Diabetes	471	236	235	460	4	1	5
51. Exophthalmic goitre	31	2	29	30	1		
52. Addison's disease	12	8	4	12			
53. Leuchæmia	52	29	23	51			
54. Anæmia, chlorosis	174	83	91	173			
55. Other general diseases	37	23	14	36	1		
56. Alcoholism (acute or chronic)	242	222	20	234	3	1	2
57. Chronic lead poisoning	14	14		14			
58. Other chronic occupation poisonings	8	3		3			
59. Other chronic poisonings	10	5	5	10			

Diseases, by Sex, Race, Nativity, and Age Periods for California: 1914.

Japanese	White				Under 1 year	1 to 9 years	10 to 19 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	70 years and over
	Born in foreign lands	Born in other states	Born in Calif.	Unknown.									
628	9,412	13,952	11,177	972	3,964	2,267	1,159	3,216	4,064	4,283	4,825	5,394	8,875
158	2,890	4,198	3,216	160	490	971	559	1,589	1,782	1,638	1,580	1,362	1,221
15	137	116	90	6	2	41	58	102	80	50	23	9	11
4	20	22	15	3	6	5	4	8	9	12	11	6	14
	1					1							
2	129	16	5		32	106	9	4	1		1		1
1	62	23	4		2	67	16	3	1	1			
9	274	16	4		172	131	1					1	1
4	179	44	15	2	7	201	25	9	1	4	2		
	18	1			2	16	1						
2	23	64	41	1	10	6	3	3	7	9	14	17	69
		1											1
	21	18	17	2	10	5		5	3	3	4	8	21
1	25	21	19		12	9		6	7	9	4	2	11
	3				2	1						8	
	16	24	14	1	2	4	4	8	3	9	9	9	9
		1										1	
			1										1
	2	1				2						1	
2	13	6	7		9	6	3	4	2	2	2		1
		1										1	
	3	16	8	1				1	4	9	5	8	1
2					1			2		1			
58	949	1,705	1,397	79	38	71	288	1,063	1,226	805	511	334	178
7	38	36	24	1	3	15	20	36	19	12	2	4	3
16	212	47	26	1	48	178	24	28	19	10	1	5	
11	71	66	46	3	12	23	20	48	38	27	17	13	9
	18	10	6			9	7	8	5	3	5	1	
	4	2	3			2	1	1	1	1			3
	19	40	13		6	4	4	13	12	11	13	5	5
	11	16	7	1	3	2	5	8	9	3	3	3	1
	8				3	7		1					
5	108	60	37	3	78	12	6	15	22	41	41	9	3
	2	4	2		2		1	3	2	1		1	
	10	61	44					2	5	10		33	42
7	88	460	479	13		1		10	45	139	256	307	312
3	40	163	133	3		1	2	7	30	46	74	100	84
1	58	184	108	3				9	43	85	99	77	41
	34	140	73	1				4	17	63	73	53	41
	9	64	32	1					3	12	20	22	51
	58	206	175	5		7	8	15	27	63	101	111	112
2	1	6	1			2		1			1	5	2
1	21	30	13		1	7	18	6	8	10	6	5	10
	15	46	25	1			3	6	7	9	13	20	31
	2				2	1							
1	81	226	182	1		11	22	35	28	49	114	90	113
	9	13	8			1	1	4	4	8	8	2	3
	2		1					2	4		3	1	2
1	12	22	16	1	1	6	3	8	5	6	10	9	4
1	25	94	54		5	5	2	10	22	28	47	37	18
	17	11	8		9	7	4	3	4	3	1	4	2
2	48	60	90	27				21	52	76	57	28	8
	4	5	5				1		4	5	3	1	
		3							1	1		1	
4	5	1						2	1	2	2	1	2

TABLE 33.—Deaths From Each Specified Disease, and Class of Diseases.

Cause of death	Total deaths	Male	Female	White	Negro	Indian	Chinese
II. DISEASES OF THE NERVOUS SYSTEM							
60. Encephalitis	3,570	2,121	1,449	3,438	43	6	47
61. (a) Simple meningitis	65	40	25	64		1	
61. (b) Cerebrospinal meningitis (undefined)	205	121	84	188	3		
61. (c) Cerebrospinal fever	88	58	35	82	1		1
62. Locomotor ataxia	38	25	13	34	2		1
63. (a) Acute anterior poliomyelitis	75	61	14	70	1		4
63. (b) Other diseases of the spinal cord	27	14	13	26		1	
64. Cerebral hæmorrhage, apoplexy	166	90	76	161	2		1
65. Softening of the brain	1,956	1,116	840	1,901	23	2	26
66. Paralysis without specified cause	70	43	27	69			1
67. General paralysis of the insane	244	141	108	238	2		4
68. Other forms of mental alienation	212	171	41	201	3	1	6
69. Epilepsy	79	35	44	75			2
70. Convulsions (nonpuerperal)	108	63	40	97	5	1	
71. Convulsions of infants							
72. Chorea	40	24	16	37			1
73. Neuralgia and neuritis	4	2	2	4			
74. Other diseases of the nervous system	23	5	18	23			
75. Diseases of the eyes and their annexa	128	85	43	127			
76. Diseases of the ears	2	2		2			
	45	30	15	44	1		
III. DISEASES OF THE CIRCULATORY SYSTEM							
77. Pericarditis	6,397	3,942	2,455	6,158	86	12	110
78. Acute endocarditis	44	28	16	41	2		
79. Organic diseases of the heart	565	354	201	559	10		9
80. Angina pectoris	4,104	2,501	1,608	4,002	58	11	75
81. Diseases of arteries, atheroma, aneurysm, etc.	190	134	56	186			1
82. Embolism and thrombosis	1,286	802	486	1,246	15	1	21
83. Diseases of the veins (varices, hemorrhoids, phlebitis, etc.)	119	54	65	118	1		
84. Diseases of lymphatic system (lymphangitis, etc.)	18	10	8	18			
85. Hæmorrhage; other diseases of circulatory system	12	6	6	11			1
	7	3	4	7			
IV. DISEASES OF THE RESPIRATORY SYSTEM							
86. Diseases of the nasal fossæ	3,463	2,064	1,399	3,227	54	27	72
87. Diseases of the larynx	1		1	1			
88. Diseases of the thyroid body	24	15	9	21	2		
89. Acute bronchitis	11	3	8	8	1		
90. Chronic bronchitis	180	100	80	174	1	1	6
91. Broncho-pneumonia	228	123	105	221		1	5
92. (a) Lobar pneumonia	901	553	438	924	18	4	19
92. (b) Pneumonia (undefined)	1,064	684	370	989	18	9	19
93. Pleurisy	632	378	254	579	6	12	11
94. Pulmonary congestion, pulmonary apoplexy	81	51	30	72	5		4
95. Gangrene of the lung	117	71	46	108	2		5
96. Asthma	6	4	2	5			
97. Pulmonary emphysema	96	52	41	90			3
98. Other diseases of the respiratory system (tuberculosis excepted)	4	2	2	4			
	32	28	4	31	1		

*Cancer and other malignant tumors.

by Sex, Race, Nativity, and Age Periods for California: 1914—Continued.

Japanese	White				Under 1 year	1 to 9 years	10 to 19 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	70 years and over
	Born in Calif.	Born in other states	Foreign born	Unknown									
36	563	1,710	1,007	68	140	171	64	122	263	366	559	710	1,145
15	32	16	1	6	5	3	9	10	12	4	7	9	6
19	113	41	25	4	65	53	11	19	19	13	13	6	6
4	57	11	14	17	37	12	7	6	4	2	1	2	2
1	17	12	4	1	5	10	4	10	4	3	2	1	2
8	38	24	1	1	2	16	6	2	8	15	22	17	13
20	4	1	1	1	3	4	3	5	12	14	36	39	50
2	22	85	53	1	3	4	3	5	12	14	36	39	50
4	124	1,044	689	44	6	4	2	12	61	146	349	522	854
5	38	25	1	1	3	4	2	1	2	2	7	14	44
13	140	83	2	2	3	4	2	3	8	14	32	60	127
1	30	104	60	7	3	4	2	5	58	81	32	27	7
2	13	36	23	3	3	4	1	13	19	15	20	9	2
85	42	19	1	2	9	5	17	24	15	11	12	8	8
2	37			29	11								
2	2	2			1	2	1	1					
5	13	5						3		3	7	9	
1	28	47	52	2	10	7	11	22	25	20	19	12	
1	1	1			1	1		1					
18	20	4	2	3	10	6	6	6	6	6	6	2	
31	520	2,944	2,539	155	6	45	69	165	333	584	967	1,500	2,719
1	8	19	11	3	1	2	3	2	5	7	5	11	8
7	92	235	182	20	2	22	17	43	61	74	105	98	133
18	326	1,871	1,606	109	1	16	46	106	229	398	662	1,032	1,672
3	12	108	65	1				1	9	29	34	41	76
2	59	622	543	22				1	18	52	140	295	782
14	72	32			1	3	9	9	9	15	18	28	36
4	7	7							1	9	1	2	5
5	6			2	4		1				1	1	3
4		3							1		1	1	4
83	1,165	1,007	965	70	671	390	63	151	223	208	330	433	895
1	12	6	3		3	12	2	1		2	2	1	1
2	2	4	2				1	2	1	4	2	1	
7	93	36	44	1	70	36	1	4	1	3	3	12	50
1	21	95	103	2	3	4	1	2	2	10	24	44	138
26	496	210	197	19	326	183	12	19	32	54	51	93	211
19	282	302	376	29	107	97	18	73	117	133	153	153	203
24	215	212	139	13	140	58	18	33	48	59	52	74	150
14	34	21	3	2	3	7	7	10	15	16	9	12	
2	17	47	44	10	5	1	2	2	5	3	17	72	
1	2	2	1					3	2	1			
6	42	40	2		1		2	4	7	19	17	43	
3		1									2	2	
3	14	13	1				2	5	3	4	4	10	4

TABLE 33.—Deaths From Each Specified Disease, and Class of Diseases.

Cause of death	Total deaths	Male	Female	White	Negro	Indian	Chinese
V. DISEASES OF THE DIGESTIVE SYSTEM							
99. Diseases of the mouth and annexe	3,173	1,873	1,300	2,964	53	16	42
100. Diseases of the pharynx	18	11	7	16	1		
101. Diseases of the œsophagus	48	27	21	45	1		
102. Ulcer of the stomach	3	3		3			
103. Other diseases of the stomach (cancer excepted)	163	114	49	156	1		4
104. Diarrhœa and enteritis (under 2 years)	258	147	111	240	6	3	2
105. Diarrhœa and enteritis (2 years and over)	889	502	387	806	15	3	3
106. Ankylostomiasis	352	198	154	336	5	1	4
107. Intestinal parasites	7	6	1	6			1
108. Appendicitis and typhlitis	345	212	133	326	10	2	2
109. (a) Hernias	96	57	39	96			1
110. (b) Intestinal obstructions	254	123	136	223	6	6	6
111. Other diseases of the intestines	56	36	20	53			1
112. Acute yellow atrophy of the liver	17	8	14	17			
113. Hydatid tumor of the liver							
114. Cirrhosis of the liver	372	273	99	347	7	1	13
115. Biliary calculi	74	21	53	73			1
116. Other diseases of the liver	148	86	62	140	1		4
117. Diseases of the spleen	5	3	2	5			
118. Simple peritonitis (nonpuerperal)	36	23	13	35		1	
119. Other diseases of digestive system (excepting cancer and tuberculosis)	32	23	9	32			
VI. DISEASES OF THE GENITO-URINARY SYSTEM							
120. Acute nephritis	2,914	1,796	1,119	2,782	49	8	61
121. Bright's disease	211	183	73	197	5		6
122. Chyluria	2,285	1,394	841	2,134	34	6	52
123. Other diseases of the kidneys and annexe	58	39	19	57			1
124. Calculi of the urinary passages	9	4	5	9			
125. Diseases of the bladder	121	106	15	119			2
126. Diseases of the urethra, urinary abscess, etc.	8	8		7		1	
127. Diseases of the prostate	103	108		103			
128. Nonvenereal diseases of male genital organs	8	8		8			
129. Uterine hæmorrhage (nonpuerperal)	1		1	1			
130. Uterine tumor (noncancerous)	61		61	53	7	1	
131. Other diseases of the uterus	22		22	21	1		
132. Cysts and other tumors of the ovary	22		22	21	1		
133. Salpingitis and other diseases of female genital organs	55		55	52	1		
134. Nonpuerperal diseases of the breast (cancer excepted)							
VII. THE PUERPERAL STATE							
135. Accidents of pregnancy	344		344	323	3	3	1
136. Puerperal hæmorrhage	75		75	72	1		
137. Puerperal septichæmia	35		35	34			
138. Other accidents of labor	19		19	18			
139. Puerperal albuminuria and convulsions	84		84	78		2	
140. Puerperal phlegmasia alba dolens, embolus, sudden death	108		108	101	2	1	1
141. Following childbirth (not otherwise specified)	12		12	12			
142. Puerperal diseases of the breast	11		11	8			
VIII. DISEASES OF THE SKIN							
143. Gangrene	115	76	39	106			3
144. Furuncle	56	40	16	56			
145. Acute abscess	16	11	5	14			1
146. Other diseases of the skin and annexe	22	16	6	18			2
147. Other diseases of the skin and annexe	21	9	12	18			
IX. DISEASES OF THE BONES							
148. Diseases of the bones (tuberculosis excepted)	54	30	24	53			1
149. Diseases of the joints (excepting tuberculosis and rheumatism)	46	26	20	45			1
150. Amputations	5	2	3	5			
151. Other diseases of the organs of locomotion	1	1		1			
152. Other diseases of the organs of locomotion	2	1	1	2			

by Sex, Race, Nativity, and Age Periods for California: 1914—Continued.

Japanese	White				Under 1 year	1 to 9 years	10 to 19 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	70 years and over
	Born in Cal.	Born in other states	Foreign born	Unknown									
106	1,289	907	711	47	800	347	92	191	226	344	360	332	472
1	7	5	4		4	3	1	1	1	7		1	1
2	24	9	11	1	6	13	7	11	2	4	2	3	3
2	40	56	57	3			2	16	30	34	30	29	22
7	39	118	78	5	9	16	2	10	16	30	39	33	103
62	765	32	8	1	741	148							
6	96	141	91	8		100	10	12	27	28	35	45	95
	1	1	4				1	3	1		2		
5	111	130	79	6	4	27	50	77	49	70	34	21	13
	14	37	43	1	3	2		4	4	12	19	24	28
14	73	79	65	5	85	25	8	12	21	30	31	33	50
2	9	20	22	2	2	4	1	6	6	5	6	9	17
	7	7	3		1	1	1	5	4	3	1	1	
4	53	124	159	11		2	2	9	23	77	99	85	60
	11	39	22	1				4	8	8	21	11	22
3	23	70	46	1	3	3	4	15	16	21	28	27	31
	1	3	1			1		1	1		2		
	7	18	10		1	2	2	4	5	7	5	5	5
	8	15	7	2			1	2	6	8	6	5	4
14	371	1,392	977	42	22	43	36	143	248	352	479	621	970
3	67	82	44	4	13	29	5	25	31	17	28	31	32
9	248	1,074	780	32	3	11	28	76	165	275	403	527	747
	8	27	20	2	2	2	2	2	6	5	14	7	18
		4	5					1	1	4	1	1	1
3	70	45	1			1			1	2	6	21	90
	3	3	1							2	2	2	2
2	56	44	1							3	10	21	67
4	2	2			4					1		1	2
	1												1
13	21	19						4	14	28	5	6	4
4	13	3	1				1	9	2	1	6	1	2
5	11	5						3	7	5	3	3	1
2	17	28	7					23	21	9	1		1
14	101	119	102	1			26	157	134	27			
2	23	28	21				3	30	36	6			
1	7	11	16				1	10	19	5			
1	3	6	9					7	11	1			
4	24	34	19	1			4	48	30	2			
3	36	32	33				14	54	28	12			
	4	5	3				2	4	5	1			
3	4	3	1				2	4	5				
6	16	52	37	1	14	3	3	4	8	5	8	17	53
	2	32	21	1				1	2	1	1	7	44
1	2	8	4		1		2	1	2	1	3	3	3
2	3	9	6		8	1	1	2	2	2	4	5	2
3	9	3	6		10	2			2	1		2	4
	19	18	14	2	6	8	8	3	2	4	7	9	7
	17	15	13		6	7	8	2	2	4	6	6	5
	1	2	1	1								3	2
	1	1		1				1					
	1	1				1					1		

TABLE 33.—Deaths From Each Specified Disease, and Class of Diseases.

Cause of death	Total deaths	Male	Female	White	Negro	Indian	Chinese
X. MALFORMATIONS							
150. (a) Hydrocephalus	323	172	151	306	3	1	5
(b) Congenital malformation of heart	29	12	17	27	1		1
(c) Other congenital malformations	221	119	102	207	2		4
	73	41	32	72		1	
XI. DISEASES OF EARLY INFANCY							
151. (a) Premature birth	1,454	828	626	1,380	19	1	10
(b) Congenital debility, "atrophy," "marasmus," etc.	849	475	374	794	13		4
152. Other diseases peculiar to early infancy	260	164	96	243	4		4
153. Lack of care	333	185	148	313	2	1	2
	12	4	8	10			
XII. OLD AGE							
154. Senility	568	306	267	577	6	7	3
	568	306	267	577	6	7	3
XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES							
155. Suicide by poison	3,988	3,247	741	3,739	52	23	66
156. Suicide by asphyxia	172	123	49	166	3		2
157. Suicide by hanging or strangulation	115	87	28	113	1		1
158. Suicide by drowning	103	82	21	82		1	10
159. Suicide by firearms	33	21	12	31			2
160. Suicide by cutting or piercing instruments	410	386	24	380	4	2	6
161. Suicide by jumping from a high place	54	50	4	48		1	3
162. Suicide by crushing	9	8	1	9			
163. Other suicides	1	1		1			
164. Poisoning by food	15	13	2	15			
165. Other acute poisonings	45	28	17	42	1	1	1
166. Conflagration	94	50	44	92			
167. Burns (conflagration excepted)	73	53	20	58	3	2	2
168. Absorption of deleterious gases (conflagration excepted)	162	74	88	150	1	4	
169. Accidental drowning	109	75	34	106			3
170. Traumatism by firearms	899	359	40	374	6	3	7
171. Traumatism by cutting or piercing instruments	106	91	15	101	1	1	1
172. Traumatism by fall	8	7	1	7			1
173. Traumatism in mines and quarries	384	274	110	373			5
174. Traumatism by machines	38	38		37			1
175. (a) Railroad accidents and injuries	67	66	1	65			1
(b) Street car accidents and injuries	304	280	24	286	6		3
(c) Automobile accidents and injuries	141	117	24	140			
(d) Injuries by other vehicles	295	244	51	289			3
(e) Landslide, other crushing	153	138	15	142	1		3
176. Injuries by animals	95	94	1	92			1
177. Starvation	89	31	8	37			
178. Excessive cold	2	1	1	2			
179. Effects of heat	5	3	2	3			
180. Lightning	27	25	2	23	1	1	2
181. Electricity (lightning excepted)	44	43	1	44			
182. Homicide by firearms	275	208	67	240	18	5	5
183. Homicide by cutting or piercing instruments	35	30	5	28	2		1
184. Homicide by other means	58	40	18	51	2		3
185. Fractures (cause not specified)	7	7		7			
186. Other injuries	111	100	11	106	2		1
XIV. ILL-DEFINED DISEASES							
187. Ill-defined organic disease	17	13	4	17			
188. Sudden death	1	1		1			
(c) Automobile accidents and injuries	295	244	51	289			3
(b) Cause of death not specified, or unknown	4	3	1	4			

by Sex, Race, Nativity, and Age Periods for California: 1914—Continued.

Japanese	White				Under 1 year	1 to 9 years	10 to 19 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	70 years and over
	Born in Calif.	Born in other states	Foreign born	Unknown									
8	304	2			306	15							
25	25	2			23	0							
8	207				215	6							
72	72				70	3							
64	1,357	2	1		1,454								
38	794				849								
9	242	1			260								
15	311	1	1		333								
2	10				12								
	6	333	229	9								23	570
	6	333	229	9								23	570
106	794	1,266	1,264	415	54	261	239	740	833	660	532	347	322
1	18	74	48	26			5	47	37	34	25	14	10
	14	29	47	23			1	12	25	25	29	15	8
10	3	30	36	13				9	25	23	22	18	6
	5	10	7	9			1	5	8	6	7	5	1
18	68	127	124	61			12	76	100	76	78	52	16
2	5	14	26	3				6	11	23	10	3	1
	1	3	4	1				1	2	2	1	1	2
				1					1				
	1	4	7	3				2	5	7			1
	13	25	4		4	7		5	7	1	5	9	7
2	23	39	26	4	2	20	5	25	16	10	12	1	3
8	14	15	23	6	4	8	4	6	8	11	16	7	9
7	58	48	39	5	4	61	10	14	23	14	11	10	15
	33	25	37	11	20	4	2	18	14	11	17	13	10
9	107	87	113	67	2	49	56	82	67	61	44	24	14
2	48	37	13	3		12	34	24	18	6	6	2	4
	1	3	2	1		1	1		2		1	3	
6	58	159	138	23	10	18	19	27	45	60	39	43	123
	1	6	27	3				7	16	10	2	3	
1	14	22	28	1		4	9	13	14	14	9	3	1
9	42	74	96	75		7	10	69	90	56	34	24	14
1	23	55	53	9		4	6	17	33	17	24	22	18
3	72	145	62	10	1	21	26	57	54	42	48	26	20
7	40	49	48	5		17	10	23	28	22	20	14	19
2	12	22	50	8		2	3	30	25	20	9	3	3
2	12	15	8	2		10	3	2	4	4	7	4	5
	1	1				1						1	
	1	2				1		1		1	1	1	
	2	8	7	6	1	1		3	6	5	5	4	2
	8	18	14	4		1	2	19	15	4	3		
7	53	62	107	18		2	9	86	92	52	20	10	4
	9	6	11	2		2	1	12	8	8	2	2	
2	10	17	20	4	2		3	15	20	10	5	2	1
	1	5	1					2		1		1	3
3	29	34	35	7	4	8	7	25	14	24	20	7	2
	8	2	5	2		4		1	2	5	3	1	1
	6	2	3	1		3		1	2	4	1	1	
	2		1	1		1				1	2		

TABLE 34.—Deaths from Certain Principal Causes,

Cause of death	The State	Northern				
		Coast				
		Del Norte	Humboldt	Lake	Mendocino	Napa
1915.						
All causes	39,026	14	370	81	309	551
Typhoid fever	276		2	1		
Malarial fever	45				1	
Smallpox	3					
Measles	132		6	1	4	
Scarlet fever	53					
Whooping-cough	124		2		1	2
Diphtheria and croup	310				1	
Influenza	181		3	2	2	1
Plague	1					
Other epidemic diseases	116				1	
Tuberculosis of lungs	4,752	1	19	5	28	54
Tuberculosis of other organs	799		14	3		9
Cancer	2,776		32	3	12	26
Other general diseases	1,645		18	1	10	14
Meningitis	273		4		2	5
Other diseases of nervous system	3,151	2	25	6	42	86
Diseases of circulatory system	7,251	5	73	11	53	132
Pneumonia and broncho-pneumonia	3,063		19	12	20	62
Other diseases of respiratory system	728		5	8	3	14
Diarrhea and enteritis, under 2 years	795		5	1	6	
Diarrhea and enteritis, 2 years and over	415		8	2	1	4
Other diseases of digestive system	1,949		17	7	21	16
Bright's disease and nephritis	2,684	1	20	3	32	44
Childbirth	356	1	4	1	4	
Diseases of early infancy	1,478	1	15	2	11	7
Suicide	1,085		14		6	17
Other violence	3,110	2	48	5	34	34
All other causes	1,525	1	17	7	14	20
1914.						
All causes	37,537	18	414	57	330	497
Typhoid fever	376		4		4	1
Malarial fever	70					
Smallpox	1					
Measles	153		6			
Scarlet fever	90			1	1	
Whooping-cough	306		6		6	2
Diphtheria and croup	268		5		1	5
Influenza	138		3		2	
Other epidemic diseases	132		1			2
Tuberculosis of lungs	4,329	5	26	6	39	61
Tuberculosis of other organs	791		7		6	3
Cancer	2,987	2	43	5	10	33
Other general diseases	1,591		15	2	14	21
Meningitis	331		6	1		5
Other diseases of nervous system	3,239	1	33	6	48	85
Diseases of circulatory system	6,397	3	60	10	48	93
Pneumonia and broncho-pneumonia	2,677		21	3	27	40
Other diseases of respiratory system	786		5	4	4	6
Diarrhea and enteritis, under 2 years	899	1	6	1	5	1
Diarrhea and enteritis, 2 years and over	352		3		1	5
Other diseases of digestive system	1,932	1	18	4	16	22
Bright's disease and nephritis	2,446	2	20	3	29	38
Childbirth	344	1	3	1	4	1
Diseases of early infancy	1,454		30	2	10	5
Suicide	912		10		5	12
Other violence	3,076	2	54	6	39	23
All other causes	1,570		26	2	11	43

for Counties Arranged Geographically: 1915 and 1914.

California													
counties		Interior counties											
Sonoma	Trinity	Butte	Colusa	Glenn	Lassen	Modoc	Nevada	Placer	Plumas	Shasta	Sierra	Siskiyou	Sutter
720	43	368	108	70	60	39	219	251	70	231	37	180	72
4		12	6	3				2		3		3	1
		5		1						7		1	
3		2		2	3		2						
4			1					1		1			
3		4	1					3		2		1	1
5		2		1			1						1
8		4	2		1		2	4				6	
4		1					2	1		1	1		1
61	2	31	10	4	4	2	29	47	6	23	1	14	7
15		3	1	1	1	1	3	7	2	1		3	1
46	1	26	5	3	1		13	9		13	3	6	6
40	2	19	3	3	2	2	7	6	3	7	2	8	7
3			1		1	1				1			1
72	5	25	6	3	3	3	20	20	4	20	1	3	5
150	16	67	16	13	9	7	43	37	6	37	4	51	12
53	1	37	16	6	6	4	20	24	6	22	4	12	7
12		4	4	1			4	8	3	6	2		1
8		3	3	2	2	1		2		3			2
14		3	1					2	1	3	2		2
53	1	20	4	3	4	3	11	13	5	5	1	10	
39	3	24	3	1	7	3	11	18	1	14	2	10	6
4	2	2		1			1	2		2		4	1
27	4	12	2	5	3	4	10	4	3	7		9	3
13		8	4	4			6	5	5	7	1	2	1
42	6	35	12	3	11	6	22	27	19	35	10	23	3
37		19	7	5	2	2	12	9	6	11	3	9	3
656	43	340	85	71	67	68	223	221	44	218	42	213	70
10	1	4	6	2	1					2		3	
2	1	4		2	1		2	2	1	7		2	1
								1		1	1		
1		4				4	1	1					
1		3	2	1		2	1	2		4	1	3	
3		3					3	1		2			
4		3	3	1		1				1	1	3	
5		4					1			1			
52	3	29	10	2	3	3	20	46		18		22	6
16		6	1		2		2	4	2	2	2	2	1
62	2	22	3	4	4	2	14	13	1	13	2	8	5
38	2	14	7	3	2	1	16	11	4	14	4	12	1
3		4		1	1			5		4		3	1
77	4	29	10	6	2	10	25	14	5	16	1	18	6
106	12	53	13	14	11	6	51	41	5	35	9	41	12
54	1	23	5	8	7	7	14	5	4	13	1	22	10
23	1	3	1	2	3	1	5	6		2		5	2
9		6	1	1		2	3	4		3		2	1
3		3	1			1	3	2		3	1	3	
35	2	22	3	3	3	9	13	8		8	2	9	4
28	1	15	7	7	2	2	10	11		15	3	4	5
5		3			2	1	1	1		3	1	3	
28	1	13	1	3	2	7	8	4	1	3		8	2
17	2	5			3		1	1	5	7	2	4	2
43	7	42	7	5	15	6	16	33	12	29	5	18	10
30	3	19	4	6	3	3	12	6	4	12	6	18	1

TABLE 34.—Deaths from Certain Principal Causes, for Counties.

Cause of death	Northern California—Cont'd		Central			
	Interior counties—Cont'd		San Francisco	Other bay counties		
	Tehama	Yuba		Alameda	Contra Costa	Marin
1915.						
All causes	145	163	7,259	3,677	389	279
Typhoid fever	3	2	41	30	6	1
Malarial fever	1	2	2			
Smallpox						1
Measles	2		17	11	1	
Scarlet fever			7	2		
Whooping-cough			20	15	2	2
Diphtheria and croup	1	2	114	22	4	2
Influenza	1	1	9	4	2	2
Plague					1	
Other epidemic diseases	1	2	19	12	1	
Tuberculosis of lungs	16	11	781	390	32	31
Tuberculosis of other organs	3	3	170	89	3	6
Cancer	7	8	586	326	21	29
Other general diseases	3	12	312	162	19	21
Meningitis		1	43	19	2	3
Other diseases of nervous system	22	8	452	288	25	26
Diseases of circulatory system	25	25	1,536	822	59	49
Pneumonia and broncho-pneumonia	16	14	644	384	30	27
Other diseases of respiratory system	3	5	144	62	4	6
Diarrhea and enteritis, under 2 years	2	3	93	64	9	5
Diarrhea and enteritis, 2 years and over	2	4	44	32	1	1
Other diseases of digestive system	4	10	421	182	18	16
Bright's disease and nephritis	12	14	500	221	27	8
Childbirth		1	56	36	5	5
Diseases of early infancy	6	3	219	112	31	5
Suicide	3	9	271	70	10	8
Other violence	10	17	495	214	66	17
All other causes	2	6	257	108	10	8
1914.						
All causes	147	134	6,940	3,559	385	289
Typhoid fever	4	4	57	27	9	
Malarial fever		2	5	2	1	
Smallpox						
Measles	1		42	31	9	
Scarlet fever			4	4	3	
Whooping-cough			56	54	6	1
Diphtheria and croup			86	37	7	1
Influenza		1	10	7		3
Other epidemic diseases			23	9	3	2
Tuberculosis of lungs	19	12	778	334	35	43
Tuberculosis of other organs	2	3	169	70	3	6
Cancer	10	10	572	271	19	14
Other general diseases	7	3	237	168	18	13
Meningitis	1		55	28	2	
Other diseases of nervous system	19	7	419	310	22	18
Diseases of circulatory system	30	29	1,409	732	57	65
Pneumonia and broncho-pneumonia	8	8	569	290	45	19
Other diseases of respiratory system	2	2	161	89	9	2
Diarrhea and enteritis, under 2 years	3	2	94	60	6	3
Diarrhea and enteritis, 2 years and over	3	2	43	27	3	1
Other diseases of digestive system	9	9	404	169	10	13
Bright's disease and nephritis	3	8	472	248	16	13
Childbirth	2	2	56	39	4	1
Diseases of early infancy	5	5	235	129	30	22
Suicide	1	5	233	96	7	12
Other violence	16	13	476	196	59	27
All other causes	2	7	225	132	12	10

Arranged Geographically: 1915 and 1914—Continued.

California

Coast counties						Interior counties							
San Mateo	Monterey	San Benito	San Luis Obispo	Santa Clara	Santa Cruz	Alpine	Amador	Calaveras	El Dorado	Fresno	Inyo	Kern	Kings
361	298	108	232	1,562	410	2	120	98	114	1,071	43	465	221
	8		2	8	1		2	2		11		5	2
				1	1			3		3		3	2
3	5	2	1	10	1		1						6
1		1		2	1					3			2
3	1			8			4		1	2			3
7	2	1		7	2					5		11	
1	2	2	2	10	6		2	1		7			1
				5	1					10			1
38	14	13	25	168	39		15	13	14	172	6	68	17
7	10	2	2	29	7			1		21		9	6
19	24	3	9	105	32		7	6	12	61	1	29	14
12	12	8	6	61	18		4	4	2	43	1	17	10
6	2			21	1		2		1	7		6	3
28	36	7	19	210	40		11	13	7	59	6	15	18
52	56	14	61	340	101		11	20	29	148	4	50	30
35	27	13	27	105	22		7	4	5	99	2	32	13
13	7	2	3	36	8		2	2	4	16	2	11	4
11	3	2	6	28	7		3	2	1	39	1	13	12
2	4	4	1	20	3		2	1	2	15		1	2
15	18	8	13	68	17		6	5	4	72	5	24	6
20	15	5	7	99	26	1	10	4	11	64	3	28	12
3	4			14	4				1	15	1	6	2
15	11	8	5	37	12		9	1	2	61	1	28	22
10	4	1	7	25	11		5	1	2	25		15	4
46	26	5	25	88	30	1	13	13	11	92	5	74	15
14	12	7	11	57	19		4	2	5	21	5	20	14
343	280	116	220	1,477	379	2	136	92	109	1,061	42	468	191
2	1	1	3	11	1		3	1	1	14	2	7	4
	1		1	3			2			6		5	1
1	2			9	1		1			4			
				2						27		2	
10	7	2	1	16	1		3	1	3	12		11	4
2				3			1			12		8	
2				5	3			2	4	15	1	1	1
1	2			4	2					6			1
33	24	18	19	156	26	1	26	8	12	131	5	52	18
10	7	4	3	30	5		1	2	2	23		9	9
22	16	8	14	118	30		7	2	10	66	2	25	12
14	13	6	7	62	16		6	2	2	33	1	14	11
3	3	1		9	4		3	1	1	13	1	3	
32	33	9	17	203	37		12	14	9	63	5	19	16
53	50	25	51	278	90		11	19	23	114	3	47	23
34	18	9	14	94	23		10	5	7	83	3	41	15
8	8	2	5	23	13		1	8	1	21		7	3
7	11	3	9	28	8		7	2		83		17	8
3	2	1	4	21	4			1	3	16		3	1
20	13	6	16	86	22		4	4	4	50	1	29	14
13	11	2	7	107	20		12	1	10	64	3	15	12
1	3	1	8	12	3		1	1		15		6	2
12	6	4	7	48	16		3	1	1	41	2	28	6
9	9	1	1	25	4	1	4	3		27	1	19	5
40	28	6	23	77	33		14	9	10	110	9	82	16
11	12	7	10	47	17		4	5	6	42	3	18	9

TABLE 24.—Deaths from Certain Principal Causes, for Counties.

Cause of death	Interior				
	Central				
	Madera	Mari- posa	Merced	Mono	Sacra- mento
1915.					
All causes	86	32	217	6	1,166
Typhoid fever			1		21
Malarial fever	1		1		1
Smallpox					
Measles					1
Scarlet fever			2		
Whooping-cough	1		3		
Diphtheria and croup		1	1		6
Influenza	1				5
Plague					
Other epidemic diseases		1	2		2
Tuberculosis of lungs	10	3	18		128
Tuberculosis of other organs	3		5		29
Cancer	6		7		79
Other general diseases	4	1	9		52
Meningitis	1	2	2		6
Other diseases of nervous system	9	1	15	1	60
Diseases of circulatory system	7	5	26		192
Pneumonia and broncho-pneumonia	5	1	16		88
Other diseases of respiratory system	1	1	6		20
Diarrhea and enteritis, under 2 years	3		9		30
Diarrhea and enteritis, 2 years and over	1		4		14
Other diseases of digestive system	7	2	9		63
Bright's disease and nephritis	3		13		81
Childbirth	1	1	6		13
Diseases of early infancy	6		11		46
Suicide	1		12		41
Other violence	13	11	29	5	140
All other causes	4	2	10		48
1914.					
All causes	85	33	182	5	1,225
Typhoid fever	1	2	2		24
Malarial fever					5
Smallpox					
Measles					7
Scarlet fever			1		2
Whooping-cough			3		11
Diphtheria and croup					5
Influenza		1			4
Other epidemic diseases	1				5
Tuberculosis of lungs	8	4	21	1	140
Tuberculosis of other organs			4		21
Cancer	5	1	11		70
Other general diseases	2		9		64
Meningitis	2		1		5
Other diseases of nervous system	6	2	12		81
Diseases of circulatory system	16	3	25		177
Pneumonia and broncho-pneumonia	12	1	14		90
Other diseases of respiratory system	1		4		24
Diarrhea and enteritis, under 2 years	2		2		27
Diarrhea and enteritis, 2 years and over	2		3		16
Other diseases of digestive system	2		13	1	82
Bright's disease and nephritis	6	2	7		98
Childbirth	1	1	4		9
Diseases of early infancy	3		8		70
Suicide	3	2	1	1	30
Other violence	10	11	24		114
All other causes	2	3	13	2	40

Arranged Geographically: 1915 and 1914—Concluded.

California						Southern California							
counties						Other counties							
San Joaquin	Solano	Stanislaus	Tulare	Tuolumne	Yolo	Los Angeles	Imperial	Orange	River-side	San Bernar-dino	San Diego	Santa Bar-bara	Ven-tura
1,148	324	350	445	99	211	9,590	270	620	468	1,148	1,356	381	281
11	3	8	3	1	1	38	3	8	6	3	7	5	1
1		1	1		1	2			3		1		
1	1	4			4	26	2	2	2	1	1	3	1
3			2			14	2			3		1	
1		1	1		2	21	1	1	2	7	1	1	
3	2	1	4		2	66	6	6	1	3	14	1	2
1		4	6	3	1	40		8	1	4	13	4	2
5			3		1	27	1	2	1	1	5		1
172	32	35	53	9	11	1,406	44	60	86	216	179	33	34
20	4	4	5		3	187	3	16	11	34	27	7	8
66	22	21	22	6	14	750	3	43	25	47	120	29	12
33	14	15	17	5	12	403	12	31	20	42	64	16	10
20	1	1	6	1	1	59	3	6	5	6	10	3	4
149	37	32	32	7	20	707	9	72	27	168	103	47	11
132	61	53	69	14	34	1,781	13	86	50	147	277	76	43
98	28	16	34	16	12	657	17	32	29	82	59	17	19
23	8	10	11	6	6	151	5	15	6	16	20	8	6
17	7	8	19		4	197	16	26	17	40	25	4	18
23	1	1	10		7	105	6	6	4	15	21	7	6
46	15	19	21	5	17	451	14	23	16	48	71	16	10
112	25	29	27	7	5	796	10	43	18	53	92	21	20
8	5	8	7		2	86	5	4	4	11	9	3	2
31	7	21	27	1	10	378	18	44	38	43	41	19	17
36	5	7	12	3	6	232	6	13	14	19	37	6	11
87	40	45	28	11	31	597	62	42	50	96	90	41	33
49	6	12	25	4	4	412	9	22	23	43	60	14	12
1,066	342	316	419	104	193	9,038	319	602	440	1,139	1,300	395	238
22	3	4	5	1	7	52	17	13	6	12	10	3	2
2		1	2			5							1
1	2	5			1	12	3		1	5		2	
		3	9		1	8		4	1	4	2		
2	2	2	4		1	28	10	6	4	3	3	3	2
2	1	2	3		3	54	3	1	3	5	5		1
3		1	4	4		27	1	8	2	1	2	2	1
6		1	3			32	2	4	4	3	2	2	1
125	26	26	45	13	14	1,373	36	57	80	226	150	37	28
23	3	2	10	1	3	202	9	20	12	21	31	9	3
60	20	19	23	5	13	703	5	40	21	66	111	24	14
84	16	11	19	3	9	364	7	34	24	41	64	13	12
15	4	3	4	1		79	2	15	10	7	11	6	4
154	38	36	40	7	14	740	10	61	30	174	107	46	21
140	64	35	52	17	30	1,496	29	63	51	143	234	58	32
85	25	21	34	11	13	544	21	43	24	72	67	18	16
16	7	11	6	5	5	191	2	11	9	17	18	11	10
11	9	4	24		7	212	30	33	21	47	29	16	18
15	5	3	6	1	2	84	2	8	5	14	10	6	3
58	15	24	16	4	11	452	4	32	19	31	63	31	7
90	23	21	23	12	11	665	10	42	25	40	106	20	21
8	3	4	3	1	1	78	3	4	7	12	9	4	5
35	17	22	16	2	6	374	22	26	21	41	42	17	13
22	10	5	7	1	5	194	10	10	9	18	32	11	2
94	40	28	39	8	29	631	70	41	30	98	126	34	33
43	9	18	22	7	7	438	11	26	12	35	66	19	8

TABLE 25.—Proportion per 1,000 Total Deaths from Certain Principal Causes, for

Cause of death	The State	Northern		Coast
		Hamblett	Monrovia	
1915.				
All causes	1,000.0	1,000.0		1,000.0
Typhoid fever	7.1	5.4		
Malarial fever	1.1			3.2
Smallpox	0.1			
Measles	3.4	16.3		13.9
Scarlet fever	1.4			
Whooping-cough	3.2	5.4		3.2
Diphtheria and croup	7.9			3.2
Influenza	4.6	8.1		6.5
Plague	*			
Other epidemic diseases	3.0			3.2
Tuberculosis of lungs	121.8	51.4		90.6
Tuberculosis of other organs	20.5	37.8		
Cancer	71.1	86.5		38.9
Other general diseases	42.1	48.7		32.4
Meningitis	7.0	10.8		6.5
Other diseases of nervous system	80.7	87.6		125.9
Diseases of circulatory system	185.8	197.3		171.5
Pneumonia and broncho-pneumonia	78.5	51.4		64.7
Other diseases of respiratory system	18.7	13.5		9.7
Diarrhea and enteritis, under 2 years	20.4	13.5		19.4
Diarrhea and enteritis, 2 years and over	10.6	21.6		3.2
Other diseases of digestive system	49.9	46.0		68.0
Bright's disease and nephritis	68.8	54.1		108.6
Childbirth	9.1	10.8		12.0
Diseases of early infancy	37.9	40.5		35.6
Suicide	26.5	37.8		19.4
Other violence	79.7	129.7		110.9
All other causes	39.1	45.9		45.3
1914.				
All causes	1,000.0	1,000.0		1,000.0
Typhoid fever	10.0	9.7		12.1
Malarial fever	1.9			
Smallpox	*			
Measles	4.1	14.5		
Scarlet fever	2.4			8.0
Whooping-cough	8.2	14.5		18.2
Diphtheria and croup	7.1	12.1		3.0
Influenza	3.7	7.2		6.1
Other epidemic diseases	3.5	2.4		
Tuberculosis of lungs	120.6	62.8		118.2
Tuberculosis of other organs	21.1	16.9		18.2
Cancer	71.6	103.9		30.3
Other general diseases	42.4	36.2		62.4
Meningitis	8.8	14.5		
Other diseases of nervous system	86.3	79.7		145.5
Diseases of circulatory system	170.4	144.9		145.5
Pneumonia and broncho-pneumonia	71.3	58.0		61.8
Other diseases of respiratory system	20.9	12.1		12.1
Diarrhea and enteritis, under 2 years	23.7	14.5		16.3
Diarrhea and enteritis, 2 years and over	9.4	7.2		3.0
Other diseases of digestive system	51.5	43.5		48.5
Bright's disease and nephritis	65.2	43.3		87.9
Childbirth	9.2	7.2		12.1
Diseases of early infancy	38.7	72.5		30.3
Suicide	24.3	24.2		15.1
Other violence	81.9	130.4		118.2
All other causes	41.8	62.8		23.2

of 1 per thousand.

Selected Counties (Reporting 300 Deaths) Arranged Geographically: 1915 and 1914.

California				Central California				
counties		Interior counties	San Francisco	Other bay counties			Coast counties	
Napa	Sonoma	Butte		Alameda	Contra Costa	San Mateo	Santa Clara	Santa Cruz
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
-----	5.6	32.6	5.7	8.2	15.4	-----	5.1	2.4
-----	-----	18.6	0.8	-----	-----	-----	-----	2.4
-----	4.2	5.4	2.3	8.0	2.6	8.3	0.6	2.4
-----	5.6	-----	1.0	0.5	-----	2.8	6.4	2.4
3.8	4.2	10.9	2.8	4.1	5.1	8.3	1.3	2.4
-----	6.9	5.4	15.7	6.0	10.3	19.4	5.1	-----
1.8	11.1	10.9	1.2	1.1	5.1	2.8	4.5	4.9
-----	-----	-----	-----	-----	2.6	-----	6.4	14.6
-----	5.6	2.7	2.6	3.3	2.6	-----	3.2	2.4
98.0	84.7	84.2	108.0	106.0	82.3	106.3	107.6	96.1
16.3	20.8	8.2	23.4	24.2	7.7	19.4	18.6	17.1
47.2	63.9	70.7	80.7	88.6	54.0	52.6	67.2	78.1
32.7	55.6	51.6	43.0	41.1	48.8	33.2	39.1	43.9
9.1	4.2	-----	5.9	5.2	5.1	16.6	18.4	2.4
156.1	100.0	67.9	62.3	78.3	64.3	77.6	134.4	97.6
230.6	208.3	182.1	211.6	223.5	151.7	144.0	217.7	246.3
112.5	73.6	100.5	88.7	104.4	77.1	97.0	67.2	53.7
25.4	16.7	10.9	19.8	16.9	10.3	36.0	23.1	19.5
-----	11.1	8.2	13.2	17.4	23.1	30.5	17.9	17.1
7.3	19.4	8.2	6.1	8.7	2.6	5.5	12.8	7.3
29.0	73.6	54.4	58.0	49.5	46.3	41.6	43.5	41.5
79.9	54.2	65.2	68.9	60.1	69.4	55.4	63.4	63.4
-----	5.5	5.4	7.7	9.8	12.8	8.3	9.0	9.8
12.7	37.5	32.6	30.2	30.5	79.7	41.5	23.7	29.3
30.8	18.0	21.7	37.3	19.0	25.7	27.7	16.0	26.8
61.7	58.3	96.1	68.2	58.2	169.7	127.4	56.3	73.2
36.3	51.4	51.6	35.4	29.4	25.7	38.8	36.5	46.4
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
2.0	15.3	11.8	8.2	7.6	23.4	5.8	7.5	2.6
-----	3.1	11.8	0.7	0.6	2.6	-----	2.0	-----
-----	-----	11.8	6.1	8.7	23.4	2.9	6.1	2.6
-----	1.5	11.8	0.6	1.1	7.8	-----	1.4	-----
4.0	1.5	8.8	8.1	15.2	15.6	29.2	10.8	2.6
10.1	4.6	8.8	12.4	10.4	18.2	5.8	2.0	-----
-----	6.1	8.8	1.4	2.0	-----	5.8	3.4	7.9
4.0	7.6	11.8	3.3	2.5	7.8	2.9	2.7	5.3
122.7	79.4	85.3	112.1	93.8	90.9	96.2	106.6	68.6
6.0	24.4	17.6	24.3	19.7	7.8	29.2	20.3	13.2
66.4	94.7	64.7	82.4	76.1	49.3	64.2	79.9	79.2
42.3	58.0	41.2	41.4	47.2	46.7	40.8	20.0	42.2
10.1	4.6	11.8	7.9	7.9	5.2	8.8	6.1	10.6
171.0	117.6	85.3	60.4	87.1	57.1	93.3	137.4	97.6
187.1	161.8	155.9	203.0	205.7	148.0	154.5	188.2	237.5
80.5	82.4	67.7	82.0	81.5	116.9	99.1	63.7	60.7
12.1	35.1	8.8	23.2	25.0	23.4	23.3	15.6	34.3
2.0	13.7	17.6	13.5	16.8	15.6	20.4	19.0	21.1
10.1	4.6	8.8	6.2	7.6	7.8	8.8	14.2	10.6
44.3	53.4	64.7	58.2	47.5	26.0	58.3	58.2	58.0
56.3	42.8	44.1	68.0	69.7	41.6	37.9	72.5	52.8
2.0	7.6	8.8	8.1	10.9	10.4	2.9	8.1	7.9
10.1	42.8	38.2	33.9	36.2	51.9	35.0	32.5	42.2
24.1	26.0	14.7	33.6	27.0	18.2	26.2	16.9	10.5
46.3	65.6	123.5	68.6	55.1	153.2	116.6	52.1	87.1
86.5	46.8	55.9	32.4	37.1	31.2	32.1	31.8	44.9

TABLE 35.—Proportion per 1,000 Total Deaths from Certain Principal Causes, for Con

Cause of death	Central			
	Interior			
	Fresno	Kern	Sacra- mento	San Joaquin
1915.				
All causes	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	10.3	10.7	18.0	9.6
Malarial fever	2.8	6.4	0.9	0.9
Smallpox				
Measles			0.9	0.9
Scarlet fever	2.8			2.8
Whooping-cough	1.9			0.9
Diphtheria and croup	4.7	23.7	5.1	2.6
Influenza	6.5		4.3	0.9
Plague				
Other epidemic diseases	9.3		1.7	4.3
Tuberculosis of lungs	100.6	146.2	100.9	160.6
Tuberculosis of other organs	19.6	19.4	21.9	17.4
Cancer	57.0	62.4	67.8	57.5
Other general diseases	40.2	36.6	44.6	28.7
Meningitis	6.5	12.9	5.1	17.4
Other diseases of nervous system	55.1	32.3	51.5	129.8
Diseases of circulatory system	138.2	107.5	161.8	115.0
Pneumonia and broncho-pneumonia	92.4	68.8	75.5	65.3
Other diseases of respiratory system	14.9	23.7	17.2	30.0
Diarrhea and enteritis, under 2 years	36.4	28.0	25.8	14.8
Diarrhea and enteritis, 2 years and over	14.0	2.1	12.0	30.0
Other diseases of digestive system	67.2	51.6	54.1	40.1
Bright's disease and nephritis	59.8	60.2	60.5	97.6
Childbirth	14.0	12.9	10.3	7.0
Diseases of early infancy	57.0	60.2	30.5	27.0
Suicide	23.3	32.3	35.2	31.4
Other violence	85.9	159.1	120.2	75.8
All other causes	19.6	43.0	41.2	42.7
1914.				
All causes	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	12.8	15.0	19.6	20.6
Malarial fever	5.5	10.7	4.1	1.9
Smallpox				
Measles	3.7		5.7	0.9
Scarlet fever	24.7	4.3	1.6	
Whooping-cough	11.0	23.5	9.0	1.9
Diphtheria and croup	11.0	17.1	4.1	1.9
Influenza	13.8	2.1	3.3	2.8
Other epidemic diseases	5.5		4.1	5.6
Tuberculosis of lungs	120.1	111.1	121.6	117.3
Tuberculosis of other organs	21.1	19.2	17.1	21.6
Cancer	60.5	53.4	57.1	56.3
Other general diseases	30.2	29.9	52.2	31.9
Meningitis	11.9	6.4	4.1	14.1
Other diseases of nervous system	57.7	40.6	66.1	144.5
Diseases of circulatory system	104.5	100.4	144.5	131.3
Pneumonia and broncho-pneumonia	76.1	87.6	73.5	79.8
Other diseases of respiratory system	19.2	15.0	19.6	15.0
Diarrhea and enteritis, under 2 years	76.1	36.3	22.0	10.3
Diarrhea and enteritis, 2 years and over	11.7	6.4	13.1	14.1
Other diseases of digestive system	45.8	62.0	60.9	54.4
Bright's disease and nephritis	58.7	32.1	75.9	84.4
Childbirth	13.8	12.8	7.4	7.5
Diseases of early infancy	37.6	59.8	57.1	32.5
Suicide	24.7	40.6	24.5	20.6
Other violence	100.8	175.2	93.1	36.2
All other causes	38.5	38.5	32.7	40.3

Selected Counties (Reporting 300 Deaths) Arranged Geographically: 1915 and 1914.

California			Southern California					
counties			Other counties					
Solano	Stanislaus	Tulare	Los Angeles	Orange	Riverside	San Bernardino	San Diego	Santa Barbara
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
9.3	22.3	6.7	4.0	12.9	12.8	2.6	5.2	13.0
	2.8	2.3	0.2		6.4		0.7	
			0.1					
3.1	11.1		2.7	3.2	4.3	0.9	0.7	7.8
		4.5	1.5			2.6		2.6
	2.8	2.3	2.2	1.6	4.3	6.1	0.7	2.6
6.2	2.8	9.0	6.9	9.7	2.1	2.6	10.3	2.6
	11.1	13.5	4.2	12.9	2.1	3.5	9.6	10.4
		6.7	2.8	3.2	2.1	0.9	3.7	
98.8	97.5	119.1	146.6	111.3	183.8	188.1	132.0	98.9
12.3	11.1	11.2	19.5	25.8	23.5	29.6	19.9	18.3
67.9	58.5	49.4	73.3	69.4	53.4	40.9	88.5	75.5
43.2	41.8	38.2	42.9	50.0	42.7	36.6	47.2	41.7
3.1	2.8	13.5	6.2	9.7	10.7	5.2	7.4	7.8
114.2	89.1	71.9	73.7	116.1	57.7	146.3	76.0	122.4
188.3	147.6	155.0	186.7	138.7	126.1	128.0	204.3	203.1
86.4	44.6	76.4	68.5	51.6	62.0	71.4	43.5	44.3
24.7	27.9	21.7	15.7	24.2	12.8	13.9	14.8	20.8
21.6	22.3	42.7	20.5	41.9	36.3	34.9	18.4	10.4
3.1	2.8	22.5	10.9	9.7	8.6	13.1	15.5	18.2
46.3	52.9	47.2	47.0	37.1	34.2	41.8	52.4	41.7
77.2	80.8	60.7	83.0	69.4	38.5	46.2	67.8	54.7
15.4	22.3	15.7	9.0	6.4	8.5	9.6	6.6	7.8
21.6	66.9	60.7	39.4	71.0	81.2	37.5	30.2	49.5
15.4	19.5	27.0	24.2	21.0	29.9	16.6	27.3	15.6
123.4	125.3	62.9	62.3	67.7	106.8	83.6	73.0	106.8
18.5	33.4	56.2	43.0	35.5	49.2	37.5	44.3	36.5
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
8.8	12.7	11.9	5.8	21.6	13.6	10.5	7.7	7.6
	3.2	4.8	0.5					
	3.2							
5.8	15.8		1.3		2.3	4.4		5.1
	9.5	21.5	0.9	6.6	2.3	3.5	1.5	
5.8	6.3	9.5	3.1	10.0	9.1	2.6	2.3	7.6
2.9	6.3	7.2	6.0	1.7	6.8	4.4	3.9	
	3.2	9.5	3.0	13.3	4.5	0.9	1.5	5.1
	3.2	7.2	3.5	6.6	9.1	2.6	1.5	5.1
76.0	82.3	107.4	151.9	91.7	202.3	198.4	115.4	93.7
8.8	6.3	23.9	22.3	33.2	27.3	21.1	23.9	22.8
58.5	60.1	54.9	77.8	66.4	47.7	58.0	85.4	60.8
46.8	34.8	45.3	40.3	56.5	51.5	30.0	49.2	32.9
11.7	9.5	9.5	8.7	24.9	22.7	6.2	8.5	15.2
111.1	113.9	96.5	81.9	101.3	68.2	152.8	82.3	116.4
187.1	110.7	124.1	165.5	104.7	115.9	125.6	180.0	146.8
73.1	75.9	81.1	60.2	71.4	54.5	63.2	51.5	45.6
20.5	34.8	14.3	21.1	18.3	20.5	14.9	13.9	27.8
26.3	12.7	57.3	23.5	51.8	47.7	41.3	22.3	40.5
14.6	9.5	14.3	9.3	13.3	11.4	12.3	7.7	15.2
43.9	75.9	38.2	50.0	53.2	43.2	27.2	48.5	86.1
67.3	66.5	54.9	73.6	69.8	56.8	35.1	81.5	50.6
8.8	12.7	7.2	8.6	6.6	15.9	10.5	6.9	10.1
49.7	69.6	38.2	41.4	43.2	47.7	36.0	32.3	43.0
29.2	15.8	16.7	21.5	16.6	20.5	15.8	21.6	27.8
117.0	88.6	93.1	69.8	68.1	68.2	86.0	96.9	86.1
26.3	57.0	52.5	48.5	32.2	27.3	30.7	50.8	48.1

TABLE 24.—Deaths from Certain Principal Causes, for Free

Cause of death	Free- holders' charter cities	Northern California				
		Eureka	Napa	Peta- luma	Santa Rosa	Grass Valley
1915.						
All causes	23,821	228	116	90	157	67
Typhoid fever	156			2	1	
Malarial fever	9					
Smallpox	1					
Measles	67	3		1	1	
Scarlet fever	23					
Whooping-cough	67		2		2	
Diphtheria and croup	228			4		1
Influenza	73	1	1	2	2	1
Other epidemic diseases	65					1
Tuberculosis of lungs	2,756	15	7	8	9	10
Tuberculosis of other organs	550	8	1	1	2	2
Cancer	1,936	24	7	4	10	4
Other general diseases	1,049	13	5	4	6	4
Meningitis	154	2		1	1	
Other diseases of nervous system	1,785	19	15	7	14	7
Diseases of circulatory system	4,652	42	28	9	31	14
Pneumonia and broncho-pneumonia	1,898	18	2	8	20	9
Other diseases of respiratory system	427	2	5	2	3	
Diarrhea and enteritis, under 2 years	403	4		1	1	
Diarrhea and enteritis, 2 years and over	231	5	2	4	3	
Other diseases of digestive system	1,308	10	5	11	16	3
Bright's disease and nephritis	1,688	13	11	2	8	2
Childbirth	229	1			1	
Diseases of early infancy	883	8	3	3	9	3
Suicide	682	7	6	2	2	
Other violence	1,639	25	10	6	10	3
All other causes	922	8	6	8	5	3
1914.						
All causes	22,525	223	84	80	129	73
Typhoid fever	198	2	1		1	
Malarial fever	20				1	
Smallpox	1					
Measles	103	5				
Scarlet fever	29					
Whooping-cough	165	3	1			
Diphtheria and croup	177			1	1	3
Influenza	58	1				
Other epidemic diseases	77	1			1	
Tuberculosis of lungs	2,596	15	4	5	4	8
Tuberculosis of other organs	510	4		4	1	1
Cancer	1,814	30	5	12	15	8
Other general diseases	981	8	5	4	8	5
Meningitis	185	1	2	1		
Other diseases of nervous	1,788	13	15	6	16	5
Diseases of circulatory system	4,085	38	17	9	25	17
Pneumonia and broncho-pneumonia	1,616	13	8	11	12	2
Other diseases of respiratory system	476	5	2	1	2	1
Diarrhea and enteritis, under 2 years	452	4			3	2
Diarrhea and enteritis, 2 years and over	206	1	1	1		2
Other diseases of digestive system	1,264	11	4	3	13	4
Bright's disease and nephritis	1,588	10	5	4	7	4
Childbirth	208	1	1	1	2	1
Diseases of early infancy	891	11		6	7	5
Suicide	616	8	3	2	2	
Other violence	1,555	26	5	3	5	2
All other causes	896	12	5	6	3	3

holders' Charter Cities, Arranged Geographically, 1915 and 1914.

Central California

San Francisco	Alameda	Berkeley	Oakland	Richmond	San Rafael	Monterey	Salinas	San Luis Obispo	Palo Alto	San Jose
7,259	299	408	2,169	160	92	73	55	119	30	463
41	6	4	13	3	1		1	1		2
2										
17	1	3	6				1			4
7		1	1							1
20			13	2			1			3
114		1	19	1		2				4
9		1	2				1			3
19		2	7	1						
784	23	29	203	13	6	3	2	12	1	41
170	10	11	57	1	3	1	5	2		11
586	26	63	201	7	14	7	7	6	6	40
312	9	22	97	6	5	5	1	4	3	17
43		1	15	1	1		1		1	1
452	25	43	171	10	8	5	4	10	1	40
1,536	74	123	478	25	16	16	6	40	7	110
644	21	39	196	15	10	4	5	12	3	37
144	7	7	38	2	3		1	3	2	11
96	1	3	43	5	2	1	1	1		6
44	6	4	18		1	2	1			6
421	18	23	107	6	7	5	4	8	1	27
500	20	29	139	11	1	3	1	4	3	40
56	7	7	21	3	3		3			5
219	8	23	69	13	1	6	3	1	1	12
271	10	6	49	4	3	2		3		6
495	16	26	136	28	5	9	3	5	1	21
257	6	17	71	3	2	2	3	7		15
6,940	290	435	2,115	142	80	62	58	101	23	461
57	2	4	13	3			1	2		3
5	1		1					1		1
42		3	24	1						2
4			4							2
56	5	9	30	4	1	5		1		7
86	1	7	25	2						
10		1	5		1					3
23			3	3			2			1
778	23	19	177	10	9	6	6	9		40
169	3	6	45	2	1	3	1	2		10
572	19	46	166	6	7	4	4	9	4	43
287	17	25	95	7	3	3	5	4		20
55	4	5	15	2			3			2
419	27	43	191	6	8	6	1	5	4	47
1,409	61	96	425	16	20	10	5	25	12	96
569	23	36	168	17	8	5	5	7		31
161	10	9	30	2		3	2	2	1	8
94	1	7	32	1	1	1	3	5		8
43	2	3	18	1				3	1	4
404	17	19	107	6	4	3	5	5	1	32
472	26	28	153	6	4	5	2	3	2	40
56	6	4	29	2		1		4	1	4
235	6	25	79	10	3	3	1	4	2	20
233	8	6	67	4	3	1	4			9
476	14	20	115	25	4	1	6	5		20
225	14	14	80	6	3	2	2	5		8

TABLE 36.—Deaths from Certain Principal Causes, for Freeholders'

Cause of death	Central California						
	Santa Cruz	Watsonville	Fresno	Bakersfield	Sacramento	Stockton	Vallejo
1915.							
All causes	190	76	377	286	907	725	122
Typhoid fever	1		2	2	19	6	1
Malarial fever				2			
Smallpox							
Measles					1	1	1
Scarlet fever						1	
Whooping-cough			1				
Diphtheria and croup	2		2	8	6	3	1
Influenza	3	2	3		5		
Other epidemic diseases	1		1		2	5	
Tuberculosis of lungs	14	10	53	53	116	79	13
Tuberculosis of other organs	2	2	11	6	28	14	2
Cancer	13	5	23	21	73	43	9
Other general diseases	9	2	8	9	48	31	7
Meningitis			3	4	6	11	1
Other diseases of nervous system	23	6	17	9	52	126	10
Diseases of circulatory system	63	9	61	34	169	85	21
Pneumonia and broncho-pneumonia	8	3	33	25	80	77	18
Other diseases of respiratory system	3	4	4	6	16	18	2
Diarrhea and enteritis, under 2 years	4	2	18	7	23	6	1
Diarrhea and enteritis, 2 years and over			5		14	17	
Other diseases of digestive system	8	7	21	14	56	28	7
Bright's disease and nephritis	10	9	23	20	68	45	8
Childbirth		1	4	5	12	4	3
Diseases of early infancy	3	4	21	10	40	18	4
Suicide	4	5	11	6	33	25	
Other violence	11	2	39	36	91	46	11
All other causes	8	3	11	9	39	36	2
1914.							
All causes	181	81	430	*	1,066	564	159
Typhoid fever		1	5		23	12	
Malarial fever			2		4		
Smallpox							
Measles			2		7		2
Scarlet fever			11		2		
Whooping-cough	1		4		10		
Diphtheria and croup			5		5		1
Influenza	2		8		4	1	
Other epidemic diseases	1	1	3		5	2	
Tuberculosis of lungs	8	5	35		131	61	10
Tuberculosis of other organs	2	2	7		20	9	1
Cancer	21	7	27		65	31	11
Other general diseases	6	5	13		50	22	9
Meningitis	2		5		5	6	
Other diseases of nervous system	20	2	23		74	116	23
Diseases of circulatory system	49	12	49		155	72	25
Pneumonia and broncho-pneumonia	11	7	37		80	53	17
Other diseases of respiratory system	3	6	13		19	13	2
Diarrhea and enteritis, under 2 years	1	2	31		23	9	2
Diarrhea and enteritis, 2 years and over	3		7		13	13	5
Other diseases of digestive system	11	6	27		74	25	9
Bright's disease and nephritis	7	10	24		83	37	11
Childbirth	3		4		8	2	
Diseases of early infancy	5	6	16		62	12	7
Suicide	2		11		23	15	6
Other violence	16	7	46		78	27	17
All other causes	7	2	15		34	23	2

*Not organized as freeholders' charter city until 1915.

Charter Cities, Arranged Geographically: 1915 and 1914—Concluded.

Modesto	Southern California									
	Los Angeles	Alhambra	Long Beach	Pasadena	Pomona	Santa Monica	Riverside	San Bernardino	San Diego	Santa Barbara
145	5,853	87	431	496	169	187	217	358	1,003	232
3	26		1		2	2	4	1	6	5
	1	1					2		1	
3	15		3			1	1	1		3
	9	3								
	15	1					2	4	1	
	38		1	5			1	1	12	1
2	13		1	3	2	3		2	8	3
	18		2	1		1			4	
13	872	6	20	59	12	12	25	80	123	20
1	133	1	4	8	3	1	5	12	22	5
12	456	11	37	55	17	18	11	16	86	19
8	264	2	23	24	6	3	11	15	54	7
1	43		2	1			3	1	8	2
13	417	14	38	51	12	22	14	27	73	30
21	1,020	17	92	101	32	45	35	40	204	43
9	425	4	21	28	16	11	11	25	44	13
3	87	1	11	6	5	5	4	7	13	2
3	111	1	10	3	3		4	18	22	2
1	5	1	3	10	4	2	2	3	12	7
1	299	3	23	30	11	14	11	17	56	12
14	453	5	62	42	12	12	10	14	77	17
4	66		3	6	1		3	3	5	3
6	234	5	10	14	5	5	16	15	27	14
2	164	1	7	6	2	3	1	7	30	4
10	362	8	37	16	16	17	26	34	63	15
5	253	2	15	27	8	9	15	15	47	5
109	5,644	*	422	458	144	189	219	352	916	260
2	33		3	3		2	5	9	10	1
1	3									
1	6				2		1	4		1
1	5								1	
1	12		4	1	4	1	1		2	2
1	32					2		1	4	
	12		2	2		1	1		2	2
	24		1	2	1		2		1	
11	841		23	60	16	10	32	82	101	24
1	149		3	6	3	5	8	9	26	7
4	438		41	53	11	9	15	25	86	20
5	220		32	17	5	7	16	11	47	11
1	54		3	3		1	3	1	9	2
11	442		45	43	16	20	18	19	74	31
9	869		93	86	31	45	27	43	176	43
9	334		23	25	10	3	10	25	43	14
2	111		8	14	1	2	4	9	16	5
2	141		7	8	4	4	10	15	23	8
	53		6	5	2	1	3	4	7	4
11	303		20	28	11	12	11	10	48	20
10	417		51	29	9	18	14	10	69	18
1	46		4	9		4	3	4	4	3
5	250		12	16	6	15	7	13	33	9
2	150		7	3	2	3	7	4	23	8
13	408		19	32	2	16	12	40	86	14
5	276		15	13	8	8	9	14	55	13

TABLE 37.—Proportion per 1,000 Total Deaths from Certain Principal Causes, for 1915 and

Cause of death	Free- holders' charter cities	North- ern Cal- ifornia	Central				
		Eureka	San Franc- isco	Alameda	Berkeley	Oakland	San Jose
1915.							
All causes	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	6.5		5.7	20.1	8.1	6.0	4.3
Malarial fever	0.4		0.3				
Smallpox	*						
Measles	2.8	13.2	2.3	3.3	6.1	2.8	8.6
Scarlet fever	1.0		1.0		2.0	0.5	2.2
Whooping-cough	2.8		2.8			6.0	6.5
Diphtheria and croup	9.6		15.7		2.0	8.8	8.6
Influenza	3.1	4.4	1.2		2.0	0.9	6.5
Other epidemic diseases	2.7		2.6		4.1	3.2	
Tuberculosis of lungs	115.7	65.8	108.0	98.7	58.8	93.6	88.5
Tuberculosis of other organs	23.1	35.1	23.4	33.4	22.3	26.3	23.8
Cancer	81.3	105.3	80.7	87.0	127.8	92.7	66.4
Other general diseases	44.0	57.0	43.0	30.1	44.6	44.7	36.7
Meningitis	6.5	8.8	5.9		2.0	6.9	2.2
Other diseases of nervous system	74.9	83.3	62.3	83.6	87.2	78.8	86.4
Diseases of circulatory system	195.3	184.2	211.6	247.5	259.6	220.4	237.6
Pneumonia and broncho-pneumonia	79.5	78.9	88.7	70.2	79.1	89.9	79.9
Other diseases of respiratory system	17.9	8.8	19.8	23.4	14.2	17.5	23.7
Diarrhea and enteritis, under 2 years	16.9	17.5	13.2	3.3	6.1	19.8	13.0
Diarrhea and enteritis, 2 years and over	9.7	21.9	6.1	20.1	8.1	8.3	13.0
Other diseases of digestive system	51.7	43.9	58.0	60.2	46.7	49.3	56.3
Bright's disease and nephritis	70.9	57.0	68.9	66.9	58.8	64.1	86.4
Childbirth	9.6	4.4	7.7	23.4	14.2	9.7	10.8
Diseases of early infancy	35.0	35.1	30.2	26.8	46.7	31.8	25.9
Suicide	28.6	30.7	37.3	33.4	12.2	22.6	13.0
Other violence	68.8	109.6	68.2	53.5	52.8	62.7	45.3
All other causes	38.7	35.1	35.4	20.1	31.5	32.7	32.4
1914.							
All causes	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	8.8	9.0	8.2	6.9	9.2	6.1	6.5
Malarial fever	0.9		0.7	3.5		0.5	2.2
Smallpox	*						
Measles	4.6	22.4	6.1		6.9	11.4	4.3
Scarlet fever	1.3		0.6			1.9	4.3
Whooping-cough	7.3	13.5	8.1	17.2	20.7	14.2	15.2
Diphtheria and croup	7.9		12.4	3.5	16.1	11.8	
Influenza	2.6	4.5	1.4		2.3	2.4	6.5
Other epidemic diseases	3.4	4.5	3.3			1.4	2.2
Tuberculosis of lungs	113.9	67.3	112.1	79.8	43.7	83.7	83.8
Tuberculosis of other organs	22.6	17.9	24.3	10.3	13.8	21.3	21.7
Cancer	80.5	134.5	82.4	65.5	106.7	78.5	93.3
Other general diseases	43.6	35.9	41.4	58.6	57.5	44.9	43.4
Meningitis	8.2	4.5	7.9	13.8	11.5	7.1	4.3
Other diseases of nervous system	79.4	58.3	60.4	93.1	98.8	90.3	101.9
Diseases of circulatory system	181.3	170.4	208.0	210.3	220.7	200.9	208.2
Pneumonia and broncho-pneumonia	71.7	58.3	82.0	79.3	82.7	79.4	67.2
Other disease of respiratory system	21.1	22.4	23.2	34.5	20.7	18.4	17.4
Diarrhea and enteritis, under 2 years	20.1	17.9	13.5	3.4	16.1	15.1	17.4
Diarrhea and enteritis, 2 years and over	9.2	4.5	6.2	6.9	6.9	8.5	8.7
Other diseases of digestive system	56.1	49.3	58.2	58.6	43.7	50.6	69.4
Bright's disease and nephritis	70.5	44.8	68.0	89.7	64.3	72.3	86.8
Childbirth	9.2	4.5	8.1	20.7	9.2	13.7	8.7
Diseases of early infancy	39.6	49.3	33.9	20.7	57.5	37.4	43.4
Suicide	27.4	35.9	33.6	27.6	13.8	31.7	19.5
Other violence	69.0	116.6	68.6	48.3	46.0	51.4	43.4
All other causes	39.8	53.8	32.4	48.3	32.2	42.1	17.3

*Less than one-tenth of 1 per thousand.

†Not over Freeholders' charter city until 1915.

Selected Freeholders' Charter Cities (Reporting 200 Deaths) Arranged Geographically:
1914.

California				Southern California						
Fresno	Bakers- field	Sacra- mento	Stockton	Los Angeles	Long Beach	Pasa- dena	River- side	San Bernar- dino	San Diego	Santa Barbara
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
5.3	7.0	19.1	8.3	4.4	2.3	-----	18.4	2.8	6.0	21.6
-----	7.0	-----	-----	0.2	-----	-----	9.2	-----	1.0	-----
-----	-----	1.0	1.4	2.6	7.0	-----	4.6	2.8	-----	12.9
-----	-----	-----	1.4	1.5	-----	-----	-----	-----	-----	-----
2.6	-----	-----	-----	2.6	-----	-----	9.2	11.2	1.0	-----
5.3	28.0	6.0	4.1	6.5	2.3	10.1	4.6	2.8	12.0	4.3
8.0	-----	5.0	-----	2.2	2.3	6.1	-----	5.6	8.0	12.9
2.6	-----	2.0	6.9	3.1	4.6	2.0	-----	-----	4.0	-----
140.6	185.3	116.3	109.0	149.0	46.4	118.9	115.2	223.5	127.6	89.2
29.2	21.0	28.1	19.3	23.6	9.3	16.1	23.1	33.5	21.9	21.6
58.4	73.4	73.2	59.3	77.9	85.9	110.9	50.7	44.7	85.7	81.9
21.2	31.5	48.2	42.8	45.1	65.0	48.4	50.7	41.9	53.8	30.2
8.0	14.0	6.0	15.2	7.3	4.6	2.0	13.8	2.8	8.0	8.6
45.1	31.5	52.2	173.8	71.2	88.2	102.8	64.5	75.4	72.8	129.3
161.8	118.9	169.5	117.2	174.3	213.5	203.6	161.3	111.7	203.4	185.3
87.5	87.4	80.2	106.2	72.6	48.7	56.5	50.7	69.8	43.9	56.0
10.6	21.0	16.1	24.8	14.9	25.5	12.1	18.4	19.5	12.9	8.6
47.7	24.5	23.1	8.3	19.0	23.2	6.0	18.4	50.3	21.9	8.6
13.3	-----	14.0	23.4	9.2	7.0	20.2	9.2	8.4	12.0	30.2
63.7	43.9	56.2	38.6	51.1	53.4	60.5	50.7	47.5	55.8	51.7
61.0	69.9	68.2	62.1	77.4	143.8	84.7	46.1	39.1	76.8	73.3
10.6	17.5	12.0	5.5	11.3	7.0	12.1	13.8	8.4	5.0	12.9
55.7	34.9	40.1	24.8	40.0	23.2	28.2	73.8	41.9	26.9	60.4
29.2	21.0	33.1	34.5	28.0	16.2	12.1	4.6	19.5	29.9	17.2
103.4	125.9	91.3	63.4	61.3	85.8	32.3	119.8	95.0	62.8	64.7
29.2	31.4	39.1	49.7	43.2	34.8	54.4	69.2	41.9	46.9	21.6
1,000.0	†	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
11.6	-----	21.6	21.3	5.8	7.1	6.6	22.8	25.6	10.6	3.9
4.6	-----	3.7	-----	0.5	-----	-----	-----	-----	-----	-----
4.6	-----	6.6	-----	1.1	-----	-----	4.6	11.4	-----	3.9
25.6	-----	1.9	-----	0.9	-----	-----	-----	-----	1.1	-----
9.3	-----	9.4	-----	2.1	9.5	2.2	4.6	-----	2.1	7.7
11.6	-----	4.7	-----	5.7	-----	-----	-----	2.8	4.2	-----
18.6	-----	3.7	1.8	2.1	4.7	4.4	4.6	-----	2.1	7.7
7.0	-----	4.7	3.5	4.2	2.4	4.4	9.1	-----	1.1	-----
81.4	-----	122.9	113.5	149.0	54.5	131.0	146.1	232.9	106.8	92.3
16.3	-----	18.8	16.0	26.4	7.1	13.1	36.5	25.6	27.5	23.9
62.8	-----	61.0	55.0	77.6	97.2	115.7	68.5	71.0	90.9	76.9
30.2	-----	55.3	39.0	39.0	75.8	37.1	73.0	31.3	49.7	42.3
11.6	-----	4.7	10.6	9.6	7.1	6.5	13.7	2.8	9.5	7.7
53.5	-----	69.4	205.7	73.3	106.6	93.9	82.2	54.0	78.2	119.2
114.0	-----	145.4	127.6	167.5	220.4	187.8	123.3	122.1	186.1	165.4
86.1	-----	75.0	94.0	59.2	54.5	54.6	45.7	71.0	45.5	53.9
30.2	-----	17.8	23.0	19.7	19.0	30.6	13.3	25.6	16.9	19.2
72.1	-----	21.6	16.0	25.0	16.6	17.5	45.7	42.6	24.3	30.8
16.3	-----	12.2	23.0	9.4	14.2	10.9	13.7	11.4	7.4	15.4
62.8	-----	69.4	44.3	53.7	47.4	61.1	50.2	23.4	50.7	76.9
55.8	-----	77.8	65.6	73.9	120.8	63.3	63.9	23.4	72.9	69.2
9.3	-----	7.5	3.5	8.1	9.5	19.6	13.7	11.4	4.2	11.5
37.2	-----	58.2	21.3	44.3	23.4	34.9	32.0	36.9	34.9	34.6
25.6	-----	21.6	26.6	26.6	16.6	6.5	31.9	11.4	24.3	30.8
107.0	-----	73.2	47.9	71.4	45.0	69.9	54.8	113.6	90.9	53.8
34.9	-----	31.9	40.8	48.9	35.6	28.4	41.1	39.8	58.1	50.0

TABLE 38.—Deaths of Males and Females 15 Years and Over,

Occupation (Showing annually at least 50 deaths)	All causes	Deaths: 1915							
		Typhoid fever.	Other epidemic diseases.	Tuberculosis.	Cancer.	Diseases of—			
						Nervous system.	Circulatory system.	Respiratory system.	Digestive system.
15 years and over	32,857	233	322	5,096	2,756	3,160	7,145	2,583	2,027
Males	20,334	167	177	3,384	1,280	1,822	4,395	1,747	1,222
All occupations	17,600	149	155	3,084	1,101	1,530	3,676	1,517	1,063
Professional	1,133	6	9	197	75	114	259	91	66
Architects, artists and teachers of art.....	68	1		19	3	7	16	3	4
Clergymen	153	1	3	11	11	19	38	19	6
Engineers and surveyors.....	220	1	1	63	13	13	43	17	9
Journalists	58			12	2	7	10	8	6
Lawyers	174	2	3	16	13	20	46	9	14
Musicians and teachers of music.....	73			16	3	5	18	5	4
Physicians and surgeons.....	192		1	19	15	17	54	17	10
Others of this class.....	195	1	1	41	15	26	34	13	14
Clerical and official.....	1,413	14	11	281	76	149	315	114	85
Bookkeepers, clerks and copyists.....	758	12	4	200	32	74	147	62	34
Bankers, brokers and officials of companies.....	242		1	22	25	33	72	15	18
Collectors, auctioneers and agents.....	311	2	6	42	18	31	74	27	21
Others of this class.....	102			17	1	11	22	10	12
Mercantile and trading.....	1,190	7	9	175	81	110	297	90	80
Commercial travelers	68		1	19	5	8	10	7	3
Merchants and dealers.....	840	7	4	89	64	85	226	65	52
Hucksters and peddlers.....	68		2	9	4	1	19	7	4
Others of this class.....	214		2	56	8	16	42	11	21
Public entertainment	409	2	3	71	23	23	81	37	33
Hotel and boarding-house keepers.....	106		1	12	11	10	25	6	6
Saloon keepers, liquor dealers, bartenders and restaurant keepers.....	308	2	2	59	12	18	56	31	27
Personal service, police and military.....	522	3	2	99	29	51	89	32	41
Barbers and hairdressers.....	115	1	1	36	5	14	14	3	11
Policemen, watchmen and detectives.....	136	1	1	9	8	17	31	6	8
Soldiers, sailors and marines (U. S.).....	145	1		15	7	12	25	14	11
Others of this class.....	126			39	9	8	19	9	11
Laboring and servant.....	3,752	45	20	885	186	251	596	332	212
Laborers (not agricultural)	3,228	43	18	738	166	222	508	280	180
Servants	524	2	2	147	20	29	88	52	32
Manufacturing and mechanical industry..	3,657	26	26	570	238	341	537	326	216
Bakers	121	1	2	27	2	9	25	10	7
Blacksmiths	167			21	16	11	31	14	13
Boot and shoe makers.....	102			19	4	7	19	15	6
Butchers	106	1	1	9	9	13	22	15	6
Cabinet makers and upholsterers.....	74		1	13	2	3	16	9	6
Carpenters	650	4	5	71	49	64	187	53	31
Cigar makers and tobacco workers.....	67			14	4	5	9	5	7
Clock and watch repairers, jewelers.....	69		1	5	3	16	16	3	5
Compositors, printers and pressmen.....	98	1	1	17	6	12	17	7	6
Engineers and firemen (not locomotive).....	235	1		41	14	22	54	18	12
Iron and steel workers.....	155	1		38	11	13	21	11	8
Leather workers	52			7	1	4	19	7	4
Machinists	204	3		33	12	13	38	21	18
Masons (brick and stone)	84	1	2	18	7	5	23	5	1
Painters, glaziers and varnishers.....	284			47	16	40	53	20	13
Plumbers and gas and steam fitters.....	83	3	1	19	10	5	13	5	5
Tailors	125			29	4	15	29	11	4
Others of this class.....	961	7	12	142	68	84	235	97	62

Classified by Occupation, with Per Cents, for California: 1915.

Bright's disease and nephritis.	Suicide.	Other violence.	All other causes.	Typhoid fever.	Other epidemic diseases.	Tuberculosis.	Cancer.	Per cent						Bright's disease and nephritis.	Suicide.	Other violence.	All other causes.		
								Diseases of—				Nervous system.	Circulatory system.					Respiratory system.	Digestive system.
2,616	1,035	2,368	2,996	0.7	1.0	15.3	8.4	9.6	21.7	8.7	6.2	8.0	3.2	8.1	9.1				
1,672	868	2,198	1,482	0.8	0.9	16.6	6.2	8.9	21.5	8.6	6.0	8.2	4.2	10.8	7.3				
1,438	726	1,912	1,269	0.8	0.9	17.2	6.3	8.7	20.9	8.6	6.0	8.3	4.2	10.9	7.2				
113	30	76	97	0.5	0.8	17.4	6.6	10.1	22.9	8.0	5.8	10.0	2.6	6.7	8.6				
5	2	4	4	1.5		27.0	4.4	10.3	23.5	4.4	5.9	7.4	2.0	5.9	5.9				
17	1	5	22	0.7	2.0	7.2	7.2	12.4	24.8	12.4	3.9	11.1	0.6	3.3	14.4				
10	6	26	19	0.5	0.5	28.6	5.9	5.9	19.6	7.7	3.6	4.6	2.7	11.8	8.6				
8	1	1	3			20.7	3.5	12.1	17.2	13.8	10.3	13.8	1.7	1.7	5.2				
28	3	7	13	1.2	1.7	9.2	7.5	11.5	26.4	5.2	8.0	16.1	1.7	4.0	7.5				
10	1	5	6			21.9	4.1	6.9	24.7	6.8	5.5	13.7	1.4	6.8	8.2				
17	9	16	17		0.5	9.9	7.8	8.9	28.1	8.9	5.2	8.9	4.7	8.3	8.8				
18	7	12	13	0.5	0.5	21.0	7.7	13.3	17.4	6.7	7.2	9.2	3.6	6.2	6.7				
107	66	98	100	1.0	0.8	19.9	5.4	10.5	22.3	8.0	6.0	7.6	4.8	6.6	7.1				
48	38	48	59	1.6	0.5	26.4	4.2	9.8	19.4	8.2	4.5	6.3	5.0	6.3	7.8				
17	9	14	16		0.4	9.1	10.3	13.6	29.8	6.2	7.5	7.0	3.7	5.8	6.6				
33	18	22	17	0.6	1.9	13.5	5.8	10.0	23.8	8.7	6.7	10.6	5.8	7.1	5.5				
9	3	9	8			16.7	1.0	10.8	21.6	9.8	11.8	8.8	2.9	8.8	7.8				
111	50	95	85	0.6	0.8	14.7	6.8	9.2	25.0	7.6	6.7	9.3	4.2	8.0	7.1				
8	2	1	4		1.5	27.9	7.4	11.8	14.7	10.3	4.4	11.8	2.9	1.4	5.9				
87	27	66	66	0.8	0.5	10.6	7.6	10.1	26.9	7.7	6.2	10.4	3.4	7.9	7.9				
3	4	12	3		2.9	13.2	5.9	1.5	27.9	10.3	5.9	4.4	5.9	17.7	4.4				
13	15	16	12		0.9	27.1	3.7	7.5	19.6	5.2	9.8	6.1	7.0	7.5	5.6				
39	25	33	34	0.5	0.7	17.4	5.6	6.8	19.8	9.1	8.1	9.5	6.1	8.1	8.3				
9	5	12	9		0.9	11.3	10.4	9.4	23.6	5.7	5.7	8.5	4.7	11.3	8.5				
30	20	21	25	0.7	0.7	19.5	4.0	5.9	18.5	10.2	8.9	9.9	6.6	6.9	8.2				
46	36	62	30	0.6	0.4	19.0	5.6	9.8	17.0	6.1	7.8	9.2	6.9	11.9	5.7				
6	10	8	6	0.9	0.9	31.3	4.3	12.2	12.2	2.6	9.6	5.2	8.7	6.9	5.2				
17	10	21	7	0.7	0.7	6.6	5.9	12.5	22.8	4.4	5.9	12.5	7.4	15.4	5.2				
10	13	25	12	0.7		10.3	4.8	8.3	17.2	9.7	7.6	6.9	9.0	17.2	8.3				
15	3	8	5			31.0	7.1	6.4	15.1	7.1	8.7	11.9	2.4	6.3	4.0				
261	175	544	245	1.2	0.5	23.6	5.0	6.7	15.9	8.8	5.7	7.0	4.7	14.5	6.5				
217	146	500	210	1.3	0.6	22.9	5.1	6.9	15.7	8.7	5.6	6.7	4.5	15.5	6.5				
44	29	44	35	0.4	0.4	28.1	3.8	5.5	16.8	9.9	6.1	8.4	3.5	8.4	6.7				
316	174	333	254	0.7	0.7	15.6	6.5	9.3	22.9	8.9	5.9	8.6	4.8	9.1	7.0				
7	9	16	6	0.8	1.7	22.3	1.7	7.4	20.7	8.3	5.8	5.8	7.4	13.2	4.9				
17	9	18	17			12.5	9.6	6.6	18.5	8.4	7.8	10.2	3.4	10.8	10.2				
14	3	8	5			18.6	3.9	6.9	18.6	14.7	7.9	13.7	2.9	7.9	4.9				
8	5	7	7	3.8	0.9	8.5	8.5	12.3	20.8	14.1	5.7	7.5	4.7	6.6	6.6				
11	3	4	6		1.3	17.6	2.7	4.1	21.6	12.2	8.1	14.9	4.0	5.4	8.1				
51	39	46	50	0.6	0.8	10.9	7.5	9.8	28.8	8.2	4.8	7.8	6.0	7.1	7.7				
1	6	12	4			20.9	6.0	7.5	13.4	7.5	10.4	1.5	8.9	17.9	6.0				
6	5	3	6		1.5	7.2	4.4	23.2	23.2	4.4	7.2	8.7	7.2	4.3	8.7				
11	6	4	10	1.0	1.0	17.4	6.1	12.2	17.4	7.2	6.1	11.2	6.1	4.1	10.2				
18	11	32	12	0.4		17.4	6.0	9.4	23.0	7.7	5.1	7.6	4.7	13.6	5.1				
11	4	14	13	0.6		31.5	7.1	8.4	20.0	7.1	5.2	7.1	2.6	9.0	8.4				
3	1	1	5			13.5	1.9	7.7	36.5	13.5	7.7	5.8	1.9	1.9	9.6				
18	7	27	14	1.5		16.2	5.9	6.4	18.6	10.3	8.8	8.8	3.1	13.2	6.9				
11	2	5	4	1.2	2.4	21.4	8.3	6.0	27.4	5.9	1.2	13.1	2.4	5.9	4.8				
33	18	21	23			16.6	5.6	14.1	18.7	7.0	4.6	11.6	6.3	7.4	8.1				
8	1	11	2	3.6	1.2	22.9	12.1	6.0	15.7	6.0	6.0	9.6	1.2	13.3	2.1				
12	8	10	3			23.2	3.2	12.0	23.2	8.8	3.2	9.6	6.4	8.0	2.4				
76	37	94	67	0.7	1.2	14.5	6.9	8.6	24.0	9.9	6.3	7.7	3.8	9.6	6.5				

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 26—Deaths of Males and Females 15 Years and Over, Classified

Occupation Showing accuracy of about 70 deaths	Deaths: 1915									
	All causes	Typhoid fever	Other infectious diseases	Tuberculosis	Cancer	Diseases of—				
						Nervous system	Circulatory system	Respiratory system	Intestines	Genitourinary
Agriculture, transportation and other outdoor	5,447	66	75	789	391	479	1,187	67	27	15
Draymen, hackmen and teamsters	23	1	4	35	20	21	63	2	3	3
Farmers, planters and farm laborers	2,642	32	42	272	287	255	614	20	164	164
Gardeners, florists, nurserymen and vine growers	286	—	1	32	36	25	71	19	14	14
Lumbermen and raftsmen	134	—	1	11	9	30	26	7	4	4
Miners and quarrymen	704	3	6	140	60	36	140	73	34	34
Sailors, pilots and oystermen	276	3	3	40	21	26	64	19	17	17
Steam railroad employees	304	2	1	64	21	22	60	26	17	17
Stock raisers, herders and drovers	302	3	13	32	25	35	87	21	21	21
Others of this class	287	—	2	58	13	29	53	26	27	27
All other occupations	77	—	—	16	2	7	15	8	3	3
No occupation	2,794	18	22	350	150	232	719	230	139	139
Females	12,463	66	145	1,652	1,496	1,338	2,750	1,116	805	805
All occupations	1,176	12	13	218	116	106	222	68	72	72
Teachers in schools	133	1	2	23	16	11	21	12	8	8
Bookkeepers, clerks and copyists	61	—	—	16	2	3	6	6	9	9
Nurses and midwives	113	4	2	18	13	10	18	7	10	10
Servants	292	1	3	43	25	22	60	31	16	16
Dressmakers and seamstresses	84	—	—	14	9	6	19	8	3	3
All other occupations	496	6	6	104	51	54	87	34	26	26
No occupation	11,285	54	132	1,434	1,380	1,232	2,528	1,018	733	733

by Occupation, with Per Cents, for California: 1915—Concluded.

Per cent																	
All other causes	Suicide	Other violence	Bright's disease and nephritis	Diseases of—					Cancer	Tuberculosis	Other epidemic diseases	Typhoid fever	All other causes	Other violence	Suicide	Bright's disease and nephritis	
				Nervous system	Circulatory system	Respiratory system	Digestive system										
458	173	662	422	0.8	1.4	13.6	7.2	8.8	21.8	8.9	6.0	8.4	3.2	12.2	7.7		
19	20	58	17	0.8	1.0	22.5	5.3	8.2	16.7	8.5	6.9	5.0	5.3	15.3	4.5		
246	72	245	284	1.2	1.6	10.3	7.8	9.7	23.2	9.8	6.2	9.3	2.7	9.3	8.0		
27	11	25	18		0.4	11.9	9.7	9.3	26.4	7.0	5.2	10.0	4.1	9.3	6.7		
9	7	33	12		0.8	8.2	6.7	7.5	19.4	5.2	6.7	6.7	5.2	24.6	9.0		
55	23	93	50	0.4	1.1	19.9	7.0	5.1	19.9	10.4	4.8	7.8	3.3	13.2	7.1		
6	9	43	17	1.1	1.1	14.5	7.6	9.4	23.2	6.9	5.4	5.8	3.3	15.6	6.1		
33	9	93	27	0.5	0.8	16.2	5.3	3.1	17.5	6.6	4.3	8.4	2.3	23.6	6.9		
35	11	35	32	0.8	3.6	10.5	6.9	9.7	24.0	6.9	6.4	9.7	3.0	9.7	8.8		
18	11	37	15		0.7	20.2	4.5	10.1	18.5	9.1	8.7	6.3	3.8	12.9	5.2		
5	5	14	2			20.7	2.6	9.1	19.5	10.4	3.9	6.5	6.5	18.2	2.6		
214	132	286	213	0.7	0.8	12.5	5.7	10.5	25.7	8.2	5.7	7.7	4.7	10.2	7.6		
914	167	470	1,514	0.5	1.2	13.3	12.0	10.7	22.1	8.9	6.5	7.6	1.3	3.8	12.1		
79	34	82	126	1.0	1.1	18.5	9.9	9.0	18.8	8.3	6.1	6.7	2.9	7.0	10.7		
14	4	7	14	0.8	1.5	17.3	12.0	8.3	15.8	9.0	6.0	10.5	3.0	5.3	10.5		
4	3	5	5			26.2	3.3	4.9	13.1	9.8	14.8	6.6	4.9	8.2	8.2		
7	6	4	14	3.5	1.8	15.9	11.5	8.9	15.9	6.2	8.9	6.2	5.3	3.5	12.4		
17	8	24	33	0.4	1.0	14.7	8.6	7.5	23.6	10.6	5.5	5.8	2.8	8.2	11.3		
6	4	5	10			16.7	10.7	7.1	22.6	9.5	3.6	7.1	4.8	6.0	11.9		
31	9	37	50	1.2	1.2	21.0	10.3	10.9	17.6	6.9	5.2	6.3	1.8	7.5	10.1		
865	133	388	1,388	0.5	1.2	12.7	12.2	10.9	22.4	9.0	6.5	7.7	1.2	3.4	12.3		

TABLE II.—Deaths of Males and Females, 15 Years and Over.

Occupation (including annually at least 20 deaths)	Deaths, 1914									
	All causes	Typhoid fever	(Hep- atitis infective illnesses)	Tuberculosis	(Cancer)	Diseases of—				
						Nervous system	Circulatory system	Respiratory system	Genitourinary system	Thyroid
15 years and over	2,884	281	229	4,883	2,657	1,321	9,389	2,387	1,977	
Males	2,225	228	199	3,523	1,364	1,002	7,902	1,856	1,287	
All occupations	3,653	288	165	2,908	1,116	1,005	3,283	1,226	1,009	
Professional	905	8	14	165	66	116	289	56	56	
Architects, artists and teachers of art	73	—	2	14	6	8	18	5	5	
Physicians	129	—	—	10	10	22	28	13	8	
Engineers and surveyors	227	3	1	62	13	19	27	10	12	
Lawyers	134	—	1	12	14	16	38	7	5	
Musicians and teachers of music	65	—	1	17	5	8	7	3	4	
Physicians and surgeons	138	—	4	19	10	23	34	8	11	
Teachers school	54	—	1	5	3	7	16	2	1	
Others of this class	116	5	4	26	5	13	21	8	10	
Clerval and office	1,078	15	9	265	75	120	289	72	95	
Bookkeepers, clerks and copyists	627	10	5	181	32	52	110	26	52	
Bankers, brokers and officials of com- panies	394	2	3	19	14	21	66	12	11	
Collectors, auctioneers and agents	334	2	1	51	21	35	71	16	28	
Others of this class	111	1	—	14	7	11	22	8	7	
Merchants and trading	1,286	17	10	187	90	168	248	109	102	
Merchants and dealers	885	8	5	79	63	102	177	59	68	
Wholesalers and peddlers	58	—	1	14	4	6	6	5	5	
Others of this class	423	9	4	94	23	40	65	36	29	
Public entertainment	282	3	1	70	21	34	82	29	29	
Hotel and boarding-house keepers	118	1	—	10	10	10	33	7	8	
Saloon keepers, liquor dealers, bar- tenders and restaurant keepers	274	2	1	60	11	24	49	22	21	
Personal service, police and military	578	2	4	109	36	46	118	55	37	
Barbers and hairdressers	120	1	1	32	4	12	19	10	8	
Janitors and sextons	63	—	—	10	4	4	17	11	5	
Policemen, watchmen and detectives	138	—	—	12	14	9	31	13	9	
Soldiers, sailors and marines (U. S.)	148	1	2	19	8	11	35	18	7	
Others of this class	109	—	1	36	6	10	16	3	8	
Laboring and servant	3,470	45	18	808	165	258	560	292	298	
Laborers (not agricultural)	2,906	43	14	609	144	224	470	237	178	
Servants	475	2	4	134	21	34	90	25	30	
Manufacturing and mechanical industry	3,402	44	29	601	252	361	678	223	298	
Bakers	22	1	1	12	5	7	18	6	6	
Blacksmiths	158	—	3	20	12	19	34	17	16	
Boot and shoemakers	117	—	1	14	6	16	27	10	6	
Butchers	83	3	1	13	13	5	20	5	6	
Cabinet makers and upholsterers	56	—	1	10	3	6	14	2	2	
Carpenters	631	7	8	89	50	70	125	40	32	
Compositors, printers and pressmen	84	—	—	23	6	8	13	5	7	
Engineers and firemen (not locomotive)	224	7	—	41	16	15	38	17	17	
Iron and steel workers	127	2	2	24	4	12	19	14	10	
Machinists	211	3	2	36	14	29	40	11	10	
Masons (brick and stone)	90	1	1	12	7	11	22	4	8	
Painters, glaziers and varnishers	283	5	—	68	19	34	45	15	11	
Plumbers and gas and steam fitters	99	1	—	27	6	9	16	4	8	
Tailors	186	1	3	38	10	15	29	8	9	
Others of this class	1,018	13	6	174	72	105	215	75	55	

Classified by Occupation, with Per Cents, for California: 1914.

Bright's disease and nephritis.	Suicide	Other violence.	Suicide	Bright's disease and nephritis.	Per cent										All other causes	
					Typhoid fever.	Other epidemic diseases.	Tuberculosis.	Cancer.	Diseases of—				Suicide	Other violence.		All other causes
									Nervous system.	Circulatory system.	Respiratory system.	Digestive system.				
2,382	912	2,065	2,915	1.0	1.0	15.6	8.7	10.5	20.4	7.7	6.4	7.7	3.0	8.6	9.4	
1,493	771	2,204	1,485	1.2	0.8	16.6	6.6	10.0	20.2	7.5	6.3	7.7	4.0	11.4	7.7	
1,258	649	1,936	1,251	1.2	0.9	17.4	6.7	9.8	19.7	7.4	6.4	7.5	3.9	11.6	7.5	
97	20	75	84	0.8	1.5	17.1	6.8	12.0	21.6	5.8	5.8	10.0	2.1	7.8	8.7	
7	1	5	2		2.7	19.2	8.2	11.0	24.7	6.9	6.8	9.6	1.4	6.8	2.7	
12		3	13			7.7	7.7	17.1	29.5	10.1	6.2	9.3		2.3	10.1	
24	7	36	13	1.3	0.4	26.2	5.5	8.0	15.6	4.2	5.1	10.1	2.9	15.2	5.5	
17	2	4	18		0.7	9.0	10.5	11.9	28.4	5.2	3.7	12.7	1.5	3.0	13.4	
8	4	5	3		1.5	26.2	7.7	12.3	10.8	4.6	6.2	12.3	6.1	7.7	4.6	
17	1	8	23		2.5	12.0	6.3	14.6	21.5	5.1	7.0	10.8	0.6	5.1	14.5	
3	2	8	6		1.8	9.3	5.6	13.0	29.6	3.7	1.8	5.6	3.7	14.8	11.1	
9	3	6	6	4.3	3.4	22.4	4.3	11.2	18.1	6.9	8.6	7.8	2.6	5.2	5.2	
98	57	88	112	1.2	0.7	20.8	5.9	9.4	21.1	5.6	7.5	7.7	4.4	6.9	8.8	
40	20	41	47	1.6	0.8	28.9	5.3	8.3	17.5	5.7	8.3	6.4	3.2	6.5	7.5	
21	4	10	21	1.0	1.5	9.3	6.9	10.3	32.3	5.9	5.4	10.3	1.9	4.9	10.3	
28	25	27	30	0.6	0.3	15.2	6.3	10.8	21.2	4.8	7.8	8.4	7.5	8.1	9.0	
9	8	10	14	0.9		12.6	6.3	9.9	19.9	7.2	6.3	8.1	7.2	9.0	12.6	
121	46	102	115	1.3	0.8	14.5	7.0	11.5	19.3	7.8	7.9	9.4	3.6	7.9	9.0	
31	24	45	94	1.0	0.6	9.8	7.8	12.7	22.0	7.3	8.4	10.1	3.0	5.6	11.7	
6	1	9	1		1.7	24.1	6.9	10.4	10.4	8.6	8.6	10.4	1.7	15.5	1.7	
31	21	48	20	2.1	0.9	22.2	5.4	9.5	15.4	8.5	6.9	8.0	5.0	11.4	4.7	
24	28	33	35	0.8	0.3	17.9	6.1	8.7	20.9	7.4	7.4	6.1	7.1	8.4	8.9	
14	6	12	7	0.8		8.5	8.5	8.5	28.0	5.9	6.8	11.8	5.1	10.2	5.9	
10	22	21	28	0.7	0.4	21.9	5.1	8.8	17.9	8.0	7.7	3.6	8.0	7.7	10.2	
39	31	70	31	0.3	0.7	18.9	6.2	8.0	20.4	9.5	6.4	6.7	5.4	12.1	5.4	
12	5	6	10	0.9	0.8	26.7	3.3	10.0	15.8	8.3	6.7	10.0	4.2	5.0	8.3	
2	4	6				15.9	6.4	6.3	27.0	17.5	7.9	3.2	6.3	9.5		
9	7	25	9			8.7	10.2	6.5	22.5	9.4	6.5	6.5	5.1	18.1	6.5	
9	8	23	7	0.7	1.4	12.8	5.4	7.4	21.7	12.2	4.7	6.1	5.4	15.5	4.7	
7	7	10	5		0.9	33.0	5.5	9.2	14.7	2.8	7.3	6.4	6.4	9.2	4.6	
181	106	577	227	1.3	0.5	23.1	4.8	7.4	16.1	7.6	6.0	5.2	4.8	16.6	6.6	
148	139	526	203	1.4	0.5	22.3	4.8	7.5	15.7	7.9	6.0	4.9	4.6	17.6	6.8	
33	27	51	24	0.4	0.8	28.2	4.4	7.2	19.0	5.3	6.3	6.9	5.7	10.7	5.1	
280	148	327	246	1.3	0.9	17.7	7.4	10.6	19.9	6.8	6.0	8.2	4.4	9.6	7.2	
9	7	5	5	1.2	1.2	14.6	6.1	8.6	22.0	7.3	7.3	11.0	8.5	6.1	6.1	
10	7	9	11		1.9	12.7	7.6	12.0	21.5	10.8	10.1	6.3	4.4	5.7	7.0	
18	5	2	10		0.9	12.0	5.1	13.7	21.8	8.5	5.1	15.4	4.3	1.7	8.5	
4	5	3	8	3.5	1.2	15.1	15.1	5.8	23.3	5.8	7.0	4.6	5.8	3.5	9.3	
4	5	5	4		1.8	17.9	5.4	10.7	25.0	3.6	3.6	7.1	8.9	8.9	7.1	
50	28	61	62	1.1	1.3	14.1	9.4	11.1	19.8	6.3	5.1	7.9	4.4	9.7	9.8	
10	1	5	6			27.4	7.1	9.5	15.5	6.0	8.3	11.9	1.2	6.0	7.1	
19	10	32	12	3.1		18.3	7.1	6.7	17.0	7.6	7.6	8.5	4.5	14.3	5.3	
4	5	25	6	1.6	1.6	18.9	3.2	9.4	15.0	11.0	7.9	3.1	3.9	19.7	4.7	
16	8	28	14	1.4	1.0	17.1	6.6	13.7	19.0	5.2	4.7	7.6	3.8	13.3	6.6	
11	3	4	5	1.1	1.1	13.3	7.8	12.2	25.6	4.5	8.9	12.2	3.3	4.4	5.6	
20	12	29	25	1.8		24.0	6.7	12.0	15.9	5.3	3.9	7.1	4.2	10.3	8.8	
9	4	9	6	1.0		27.3	6.1	9.1	16.2	4.0	8.1	9.1	4.0	9.1	6.0	
6	3	7	7	0.7	2.2	27.9	7.4	11.0	21.3	5.9	6.6	4.4	2.2	5.2	5.2	
90	45	108	65	1.3	0.6	17.1	7.1	10.3	21.1	7.4	5.4	8.8	4.4	10.1	6.4	

TABLE 20.—Deaths of Males and Females, 15 Years and Over, Classified

Occupation (Showing annually at least 50 deaths)	Deaths: 1914									
	All causes	Typhoid fever	Other epidemic diseases	Tuberculosis	Cancer	Diseases of—				
						Nervous system	Circulatory system	Respiratory system	Infective system	
Agricultural, transportation and other outdoor	5,178	67	60	677	391	534	1,100	621	39	39
Draymen, hackmen and teamsters	388	6	1	74	16	34	62	34	25	25
Farmers, planters and farm laborers	2,103	23	30	189	185	238	523	189	167	167
Gardeners, florists, nurserymen and vine growers	180	1	2	17	16	22	40	19	15	15
Livery stable keepers and hostlers	63			10	4	7	15	5	3	3
Lumbermen and raftsmen	131	1	1	16	10	14	15	9	5	5
Miners and quarrymen	712	2	10	138	52	64	144	51	34	34
Sailors, pilots and oystermen	256	6	2	37	20	29	44	20	11	11
Steam railroad employees	387	7	1	64	23	28	74	22	29	29
Stock raisers, herders and drovers	623	10	10	75	44	73	140	37	67	67
Others of this class	332	8	3	57	21	25	43	25	22	22
All other occupations	125	2		31	11	8	19	8	9	9
No occupation	2,642	25	15	305	154	307	619	220	138	138
Females	11,549	83	150	1,600	1,408	1,299	2,407	911	779	779
All occupations	1,186	6	12	229	103	119	224	95	79	79
Teachers in schools	104	1		20	14	15	16	11	6	6
Bookkeepers, clerks and copyists	70	1		28	5	5	5	2	9	9
Nurses and midwives	86	1	1	18	9	7	15	4	8	8
Servants	801	1	3	53	24	29	53	24	23	23
Dressmakers and seamstresses	85		1	14	8	16	16	7	3	3
All other occupations	540	2	7	96	43	47	129	47	30	30
No occupation	10,368	77	138	1,371	1,305	1,180	2,173	816	691	691

by Occupation, with Per Cents, for California: 1914—Concluded.

				Per cent											
Bright's disease and nephritis.	Suicide	Other violence	All other causes	Typhoid fever.	Other epidemic diseases	Tuberculosis	Cancer.	Diseases of—				Bright's disease and nephritis.	Suicide	Other violence	All other causes
								Nervous system	Circulatory system	Respiratory system	Digestive system				
410	149	646	394	1.3	1.2	13.1	7.5	10.3	21.2	8.1	6.4	7.9	2.9	12.5	7.6
26	15	74	21	1.5	0.2	19.1	4.1	8.8	16.0	8.8	6.4	6.7	3.9	19.1	5.4
190	54	145	177	1.2	1.4	9.0	8.8	11.3	24.9	9.5	7.0	9.0	2.6	6.9	8.4
12	9	18	9	0.6	1.1	9.4	8.9	12.2	22.2	10.6	8.3	6.7	5.0	10.0	5.0
3	1	11	4			15.9	6.3	11.1	23.8	7.9	4.8	4.8	1.6	17.5	6.3
8	2	37	13	0.8	0.8	12.2	7.6	10.7	11.5	6.9	3.8	6.1	1.5	28.2	9.9
57	11	84	65	0.3	1.4	19.4	7.3	9.0	20.2	7.2	4.8	8.0	1.5	11.8	9.1
18	9	52	11	2.3	0.8	14.3	7.7	11.2	17.0	7.7	4.2	7.0	3.5	20.1	4.2
31	11	83	23	1.8	0.3	16.5	5.9	7.2	19.1	5.7	5.2	8.0	2.8	21.4	5.9
46	22	78	46	1.6	1.6	12.0	7.1	11.7	22.5	5.9	7.6	7.4	3.5	11.7	7.4
19	15	69	25	2.4	0.9	17.2	6.3	7.6	13.0	7.5	6.6	5.7	4.5	20.8	7.5
8	4	18	7	1.6		24.8	8.8	6.4	15.2	6.4	7.2	6.4	3.2	14.4	5.6
235	122	268	234	1.0	0.6	11.6	5.8	11.6	23.4	8.3	5.2	8.9	4.6	10.1	8.9
889	141	461	1,430	0.7	1.3	13.9	12.2	11.2	20.8	7.9	6.7	7.7	1.2	4.0	12.4
86	22	90	111	0.5	1.0	19.3	8.7	10.0	19.7	8.0	6.7	7.2	1.9	7.6	9.4
5	1	5	10	1.0		19.2	13.4	14.4	15.4	10.6	5.8	4.8	1.0	4.8	9.6
4		5	6	1.4		40.0	7.2	7.1	7.1	2.9	12.9	5.7		7.1	8.6
5	3	9	6	1.2	1.2	20.9	10.5	8.1	17.4	4.6	9.3	5.8	3.5	10.5	7.0
24	7	26	34	0.3	1.0	17.6	8.0	9.6	17.6	8.0	7.7	8.0	2.3	8.6	11.3
7		4	9		1.2	16.5	9.4	18.8	18.8	8.3	3.5	8.2		4.7	10.6
41	11	41	46	0.4	1.3	17.8	8.0	8.7	23.9	8.7	5.5	7.6	2.0	7.6	8.5
803	119	371	1,319	0.7	1.3	13.2	12.6	11.4	21.0	7.9	6.7	7.7	1.2	3.6	12.7

IV. STATISTICS OF MARRIAGES: 1915 AND 1914.

SYNOPSIS.

Number in Order. Of the 31,451 marriages in 1915 and the 31,902 in 1914, those which were the first for both parties numbered 21,993 and 22,747, respectively, the per cents being only 69.9 and 71.3, against the annual average of 72.8 for the ten-year period just ended. The per cent of weddings with both parties single decreased quite steadily from 74.1 in 1906 to merely 69.9 in 1915.

The proportion of first marriages is generally higher each year for San Francisco than for any other geographic division, though not as high as for certain small counties in the interior. The proportion of marriages where both parties were single is very low indeed, however, for Marin and San Mateo counties, adjoining San Francisco, as well as for Orange, adjoining Los Angeles.

In 1915 there were 3,878 marriages between bachelors and widows or divorcees, but only 2,617 between spinsters and widowers or divorced men, the corresponding figures for 1914 being 3,770 and 2,514. Only three counties in 1915 and eight in 1914 showed exceptions to the rule that there are more unions of bachelors with widows or divorcees than of spinsters with widowers or divorced men, the proportionate excess for the first named unions being now about one-half, against only one-third ten years ago.

In 2,963 cases in 1915, and 2,871 in 1914, the marriages were the second or over for both grooms and brides, the per cents for such marriages being as great as 9.4 and 9.0, against the average of 8.3 for the ten years last past, marked increases having appeared since 1906. Marriages where both parties were widowed or divorced occur much less often in the metropolis than in the suburbs, and somewhat less in the whole urban area than in sparsely settled rural counties.

Status of Grooms and Brides. In 1915 and 1914, respectively, the bachelor grooms numbered 25,871 and 26,517; the widowers 2,716 and 2,710; and the divorced men remarrying 2,864 and 2,675. The per cents for bachelors were 82.3 and 83.1, as compared with the annual average of 83.9 for 1906 to 1915, the proportion of bachelors among grooms having decreased generally through the ten years.

The spinster brides totaled 24,610 and 25,261 in 1915 and 1914; the widows 3,159 and 3,179; and the divorcees 3,682 and 3,462. The per cents for spinsters were 78.2 and 79.2, against the annual average of 80.7 for the ten-year period, the proportion for first marriage brides having dropped generally between 1906 and 1915.

While the proportions of widowers among grooms and of widows among brides varied only slightly through the ten years from the averages of 8.8 for widowers and 10.0 for widows, yet the per cents divorced, averaging 7.3 among grooms and 9.3 among brides, increased greatly between 1906 and 1915, rising from merely 6.1 to no less than 9.1 for grooms and from only 7.9 to as much as 11.7 for brides. For

the last nine years, in fact, the per cent of divorcees among brides increased steadily, thus: 7.4 (1907), 7.7, 8.4, 9.5, 9.6, 9.8, 10.3, 10.8 and 11.7 (1915).

The year 1915 is the first since the beginning of registration, in 1905, to show divorced men ahead of widowers in the number remarrying, the excess for 1915 being 148 (2,864 divorced men against 2,716 widowers). The divorcees remarrying surpassed the widows in each of the past four years, the excess for divorcees being 523 in 1915 and 283 in 1914, against only 58 in 1913 and merely 50 in 1912.

The widows outnumbered the widowers by 443, or 16.3 per cent, in 1915 and by 469, or 17.3 per cent, in 1914. Similarly, the divorcees outnumbered the divorced men by 818, or 28.6 per cent, in 1915 and by 787, or 29.4 per cent in 1914.

The per cents widowed among both grooms and brides, and divorced among grooms alone, were greater in both 1915 and 1914 for the counties south of Tehachapi than for those to the north.

Somewhat more widowers, as well as widows, remarry in the country districts than in urban centers, and, in the latter, many more remarry in the suburbs than in the metropolis proper.

Divorced men and women likewise remarry considerably more in the surrounding suburbs than within the main city.

The high marriage rates for suburban counties are due largely to the fact that these places are sought by city couples, especially by divorced persons marrying again.

The Widowed and Divorced. Although most weddings in California are of bachelors with spinsters, yet the greatest gains shown are for marriages of the widowed or divorced, especially the latter.

Statistics indicate that bachelors find divorcees very attractive indeed. While early years of registration showed more marriages of bachelors with widows than with divorcees, yet for six years beginning with 1910 there have been more unions of bachelors with divorcees than with widows. The per cent of total marriages which were between bachelors and divorcees rose steadily, thus: 4.6 (1907), 4.9, 5.2, 5.8, 5.9, 6.1, 6.2, 6.7 and 7.1 (1915).

In less degree than between bachelors and divorcees, there are also more weddings of spinsters with divorced men than with widowers. Unions between single women and divorced men surpassed those between spinsters and widowers for four years, beginning with 1912.

In contrast with bachelors and spinsters who wed the divorced more than the widowed, those who marry others of like prior experience when widowed or divorced themselves, seem more apt to unite with a mate widowed by death rather than with one divorced by law.

Nativity of California Brides. Of the 31,451 brides in 1915 and the 31,902 in 1914, the non-Caucasians numbered only 1,440 and 1,457, or 4.6 per cent of all each year.

Over nine-tenths of all Japanese weddings in California occur at San Francisco upon the arrival of ships with "picture brides." Nearly all the Japanese, Chinese and Indian brides were single, while the Negro brides included many widows and divorcees.

The white brides totaled 30,011 in 1915 and 30,445 in 1914, and among them the spinsters were 23,341 and 24,023; the widows 3,051 and 3,043; and the divorced 3,619 and 3,319.

The white brides were classified by nativity as follows: California, 10,809 and 11,073 in 1915 and 1914, respectively; other states, 13,628 and 13,183; and foreign born, 5,574 and 6,189.

The per cents for spinsters among all white brides were only 77.8 and 78.9 in 1915 and 1914 against the annual average of 80.6 for 1906 to 1915. On the other hand, the per cents for divorcees were no less than 12.0 and 11.1 as compared with the average of 9.4 for the last ten years. In fact, the per cent of divorcees among white brides increased steadily ever since 1907, thus: 7.4 (1907), 7.7, 8.4, 9.6, 9.7, 10.0, 10.5, 11.1 and 12.0 (1915).

For Californian, other American and foreign born white brides alike, the per cents single in 1915 and 1914 were notably below the average for 1906 to 1915; the per cents widowed substantially the same as the average; and the per cents divorced considerably above the average. Each class of brides also shows a general increase in the per cent divorced between 1906 and 1915, especially in the latest years.

The proportion of widows among all white brides was greater in 1915 and 1914 for southern California than for northern or central California, while the proportion of divorcees was somewhat less each year for the counties south of Tehachapi than for those to the north.

Widows remarry more in country districts than in urban centers, but divorcees remarry more in the metropolitan area than in the rural counties. However, both widows and divorcees remarry more in suburban counties, like Marin and San Mateo, than in San Francisco, the metropolis proper.

In substantially each element of the population—Californian, other American, or foreign—more divorcees, as well as widows, remarry in the suburban territory than within the metropolis itself.

The per cent distribution of white brides by nativity was as follows for 1915 and 1914: California, 36.0 and 36.4; other states, 45.4 and 43.3; and foreign, 18.6 and 20.3. The annual average per cents for 1906 to 1915 were: California, 38.8; other states, 41.7; and foreign, 19.5. Native Californians outnumbered other Americans in 1906 to 1909, but in the six years last past more of the white brides here were born in other states than within the Golden State.

Over half the white brides in both 1915 and 1914 were native daughters, in as many as thirty counties all north of Tehachapi. On the other hand, over half the brides both years were born in other states, in only eight counties in or near southern California, while at least one-fourth of the brides each year were foreign born, merely in San Francisco and one other county (Amador).

In 1915 and 1914, respectively, the per cents born in California among the single white brides were 39.0 and 39.3 against the average of 41.6 for 1906 to 1915; among divorcees were 30.8 and 29.7 against the average of 32.1; and among widows were only 19.3 and 20.7 against the average of 22.3. Throughout California the native daughters form a very large part of the spinster brides and a large proportion of the divorcees, but only a small proportion of the widows.

In 1915 and 1912 the per cents born elsewhere in the United States than here, among divorcees were 56.4 and 57.0 against the average of 54.8 for the ten years last past; among widows were 54.2 and 53.0

against the average of 51.5; and among spinsters were 42.6 and 40.1 against the average of 38.9. A larger proportion of the divorcees than of the widows remarrying in various parts of California were born elsewhere in the United States. Among first marriage brides there were more native Californians than other Americans in 1906 to 1912 but in the three years last past more spinster brides were natives of other states than of California.

The per cents foreign born in 1915 and 1914, respectively, among widowed brides were 26.5 and 26.3 as compared with the average for 1906 and 1915 of 26.2; among spinsters were 18.4 and 20.6 as compared with the average of 19.5; and among divorcees remarrying were only 12.8 and 13.3 as compared with the average of 13.1. Throughout California, as a rule, the proportion of foreign born brides is highest among the widowed, and next among the single, being very low indeed among the divorced.

While most of the spinster brides were born in California or other states, the great bulk of the divorcees were born elsewhere in the United States, and most of the widows were likewise born outside of California, either in other states or abroad. The proportion foreign born, though relatively great among widows, is especially small among divorcees, nearly all the divorced brides being natives of California or other states.

GENERAL MARRIAGE STATISTICS.

Number in Order.—Table 1, which follows, shows the number in order of marriages, with per cents, for the three main and eight minor geographic divisions, as well as certain other groups of counties, in both 1915 and 1914. Similar figures for individual counties, arranged alphabetically, may be found in Tables 9 and 10, *post*.

TABLE 1.—Marriages Classified by Number in Order, with Per Cents, for Geographic Divisions*: 1915 and 1914.

Geographic division	Total marriages	Number of marriages				Per cent of marriages			
		First of both parties	First of groom only	First of bride only	Second or over of both	First of both parties	First of groom only	First of bride only	Second or over of both
1915.									
The State	31,451	21,908	2,878	2,617	2,963	69.9	12.4	8.3	9.4
Northern California	2,407	1,828	313	165	191	73.2	12.5	6.6	7.7
Coast counties	1,200	918	160	80	102	72.4	12.6	7.0	8.0
Interior counties	1,228	910	153	76	89	74.1	12.5	6.2	7.2
Central California	17,328	12,511	2,171	1,358	1,488	71.1	12.5	7.8	8.6
San Francisco	6,817	4,907	876	526	508	72.0	12.8	7.7	7.5
Other bay counties	4,152	2,813	543	386	410	67.7	13.1	9.3	9.9
Coast counties	1,065	1,172	193	141	159	70.4	11.6	8.5	9.5
Interior counties	4,094	3,419	569	305	411	72.8	11.9	6.5	8.8
Southern California	11,636	7,854	1,394	1,094	1,284	67.6	12.0	9.4	11.0
Los Angeles	6,981	4,798	778	675	735	68.7	11.1	9.7	10.5
Other counties	4,645	3,061	616	419	549	65.9	12.3	9.0	11.8
Northern and Central California	19,825	14,139	2,484	1,523	1,679	71.3	12.5	7.7	8.5
Coast counties	13,903	9,810	1,772	1,142	1,179	70.6	12.7	8.3	8.5
Interior counties	5,922	4,329	712	381	500	73.1	12.0	6.4	8.5
Metropolitan area	10,909	7,720	1,419	912	918	70.4	12.9	8.3	8.4
Rural counties	8,856	6,419	1,065	611	761	72.5	12.0	6.9	8.9
1914.									
The State	31,902	22,747	2,770	2,514	2,871	71.3	11.8	7.9	9.0
Northern California	2,650	1,987	329	180	304	73.1	12.4	6.8	7.7
Coast counties	1,349	970	176	90	104	71.9	13.1	7.3	7.7
Interior counties	1,301	967	153	81	100	74.3	11.8	6.2	7.7
Central California	17,318	12,567	2,064	1,258	1,484	72.6	11.9	7.2	8.3
San Francisco	6,216	4,711	650	427	419	75.8	10.6	6.9	6.7
Other bay counties	4,250	2,914	505	344	427	68.6	13.3	8.1	10.0
Coast counties	1,903	1,372	216	156	159	72.1	11.3	8.2	8.4
Interior counties	4,949	3,570	624	336	429	72.1	12.6	6.6	8.7
Southern California	11,384	8,243	1,377	1,081	1,233	69.1	11.5	9.1	10.3
Los Angeles	7,441	5,226	788	664	743	70.3	10.6	9.3	10.9
Other counties	4,493	3,017	569	397	490	67.2	13.1	8.8	10.9
Northern and Central California	19,968	14,504	2,393	1,433	1,688	72.6	12.0	7.3	8.3
Coast counties	13,718	9,967	1,616	1,086	1,109	72.6	11.8	7.5	8.1
Interior counties	6,250	4,537	777	407	529	72.6	12.4	6.5	8.5
Metropolitan area	10,466	7,625	1,224	771	846	72.8	11.7	7.4	8.1
Rural counties	9,502	6,879	1,169	692	792	72.4	12.3	7.0	8.3

*For list of counties included in geographic divisions, see page 186.

It appears from Table 1 that of 31,451 marriages in California in 1915, altogether 21,993 or 69.9 per cent were first marriages for both parties; 3,878, or 12.4 per cent, were first marriages for the grooms only; 2,617, or 8.3 per cent, were first marriages for the brides only; and 2,963, or 9.4 per cent, were second marriages or over for both grooms and brides. Of the 31,902 marriages in 1914, there were 22,747, or 71.3 per cent, in which neither party had been married before;

3,770, or 11.8 per cent, where only the grooms were single; 2,514, or 7.9 per cent, where only the brides were single; and 2,871, or 9.0 per cent, where both grooms and brides were widowed or divorced.

Analysis of the per cents for the state is facilitated by a calculation of annual averages for 1906 to 1915, the ten-year period just ended, as given in the following tabular statement:

Number in order	Per cent of marriages										
	Annual average 1906 to 1915	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906
State totals -----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
First of both parties-----	72.8	69.9	71.3	71.7	72.9	73.0	72.5	73.6	74.1	75.0	74.1
First of groom only-----	11.1	12.4	11.8	11.5	11.0	11.2	11.0	10.5	10.6	10.1	10.5
First of bride only-----	7.8	8.3	7.9	7.9	7.6	7.7	8.0	8.0	7.5	7.6	7.8
Second or over of both-----	8.3	9.4	9.0	8.9	8.5	8.1	8.5	7.9	7.8	7.3	7.6

In the ten-year period 1906 to 1915 an average of 72.8 per cent of all marriages were the first for both parties. The average per cent was 11.1 for marriages which were the first for the groom only and 7.8 for those which were the first for the bride only, the average per cent being 8.3 for marriages which were the second or over for both grooms and brides.

The per cent of marriages with both parties single decreased quite steadily from 74.1 in 1906 to only 69.9 in 1915. The per cent rose considerably between 1906 and 1915 for marriages where only the groom was single but varied comparatively little for those where only the bride was single. Through the ten years there were marked increases in the per cent of marriages which were the second or over for both parties.

In comparison with the average per cents for the ten-year period, the per cents for 1915 and 1914 were relatively low for marriages which were the first for both parties, and rather high for marriages which were the first for the groom only or which were the second or over for both parties, the per cents for the last two years being about the same as the average for the whole period for marriages which were the first for the bride only.

Reference to Table 1, *ante*, indicates that the per cent of first marriages for both parties was much higher in both 1915 and 1914 for the territory north of Tehachapi than for southern California. The per cents for northern California were also higher each year than those for central California.

The per cent of first marriages was about the highest among all geographic divisions each year for San Francisco but was the lowest outside southern California for the adjacent group of suburban counties (Alameda, Contra Costa, Marin and San Mateo). Similarly, the per cent of first marriages was much higher for Los Angeles than for the other counties south of Tehachapi.

Examination of Tables 9 and 10, *post*, shows that the proportion of marriages which were the first for both parties is very high for certain small counties. In 1915 the per cents were highest in decreasing order for the counties of Glenn, Lassen, Calaveras, and Sierra. The one

marriage in Alpine County in 1914 was the first for each party, while the per cent of first marriages was next highest in this year for the counties of Del Norte, Modoc, Mariposa and Sutter.

On the other hand, the per cents of first marriages are very low indeed for individual counties adjoining San Francisco and Los Angeles. Thus, for counties adjoining San Francisco the per cents were only 59.5 and 61.6 for Marin in 1915 and 1914, and as low as 61.6 and 65.4, respectively, for San Mateo. Likewise, the per cents of first marriages for Orange County, adjoining Los Angeles, were only 64.6 in 1915 and 61.6 in 1914. There are only a few other counties in the state where in 1915 or 1914 less than 70.0 per cent of the marriages were first marriages for both parties. The additional counties in 1915 were: Inyo, Los Angeles, Madera, Mono, Napa, Placer, Sacramento, San Benito, San Bernardino, San Diego, Santa Cruz, Solano, Tuolumne and Yuba, and in 1914 were Colusa, Contra Costa, Glenn, Inyo, Madera, Mendocino, Mono, Napa, Sacramento, San Diego, Tehama, Trinity and Tuolumne.

In 1915 there were 3,878 marriages which were the first for only the grooms, as compared with 2,617 which were the first for only the brides. Similarly, in 1914, the first marriages for only the grooms numbered 3,770 against only 2,514 for the first marriages of the brides alone. The excess of first marriages of grooms over first marriages of brides was 1,261, or 48.2 per cent, in 1915, and 1,256, or 50.0 per cent, in 1914. In other words, the number of single men marrying widowed or divorced women, is greater by about one-half than the number of single women marrying widowed or divorced men. In 1906, the first year of registration, the corresponding excess was 564, or 33.7 per cent, about one-third. No main or minor geographic division of California shows any departure from this rule, that there are more unions of bachelors with widows than of maids with widowers. In fact, there are exceptions to the rule, and only slight exceptions at that, for merely three of the whole fifty-eight counties in 1915, and only eight in 1914, the three for 1915 being Placer, Riverside and Stanislaus, and the eight for 1914 being Amador, Colusa, Contra Costa, Napa, San Benito, Santa Barbara, Stanislaus and Sutter. In Amador, Lake and Mariposa, in 1915, and in Del Norte and Riverside, in 1914, there were exactly the same number of marriages where only the grooms were single as where only the brides were single. But in all the remaining counties of the state the rule holds good that there are more marriages between bachelors and widows or divorcees than between spinsters and widowers or divorced men.

Further reference to Table 1, *ante*, shows that the per cent of marriages which were the second or over for both grooms and brides is much higher for southern California than for either central or northern California. The per cent of marriages where both parties were widowed or divorced, was highest of all each year among minor geographic divisions for the counties of southern California other than Los Angeles. In northern and central California the per cents were slightly less for the metropolitan area than for the rural counties and within the center were much less for San Francisco (being about the lowest for all minor geographic divisions) than for the group as a whole. Marriages between widowed or divorced men were much less in San Francisco than in the suburbs and

somewhat less in an urban center like San Francisco or Los Angeles than in sparsely settled rural districts. Thus, it appears from Tables 9 and 10, *post*, that the counties in which over one-tenth of the marriages were between widowers and widows were mainly suburban or rural counties, as follows: Alpine, Fresno (per cent only 10.4), Inyo, Los Angeles (per cent only 10.5), Madera, Marin, Monterey, Napa, Orange, Placer, San Bernardino, San Diego, San Mateo, Santa Cruz, Sierra and Trinity in 1915; and Colusa, Contra Costa, Lake, Marin, Napa, Orange, Placer, Sacramento, San Diego, San Mateo, Santa Barbara, Sierra, Tehama, Tuolumne and Ventura in 1914.

Status of Grooms.—The table which follows gives for each geographic division in 1915 and 1914 the civil status or marital condition of the grooms—whether single, widowed or divorced—at the time of marriage. Similar figures for individual counties, arranged alphabetically, appear in Tables 9 and 10, *post*.

TABLE 2.—Grooms Classified by Marital Condition, with Per Cents, for Geographic Divisions: 1915 and 1914.

Geographic division	Grooms				Per cent		
	Total	Single	Wid- owed	Di- vorced	Single	Wid- owed	Di- vorced
1915.							
The State	31,451	25,871	2,716	2,864	82.3	8.6	9.1
Northern California	2,497	2,141	187	169	85.7	7.5	6.8
Coast counties	1,269	1,078	101	90	84.9	8.0	7.1
Interior counties	1,228	1,063	86	79	86.6	7.0	6.4
Central California	17,328	14,782	1,296	1,550	83.6	7.5	8.9
San Francisco	6,817	5,783	430	604	84.8	6.3	8.9
Other bay counties	4,152	3,356	376	420	80.8	9.1	10.1
Coast counties	1,065	1,365	135	165	82.0	8.1	9.9
Interior counties	4,694	3,978	355	361	84.7	7.6	7.7
Southern California	11,626	9,218	1,233	1,145	79.5	10.6	9.9
Los Angeles	6,981	5,571	770	640	79.8	11.0	9.2
Other counties	4,645	3,677	463	505	79.1	10.0	10.9
Northern and Central California ..	19,823	16,623	1,483	1,719	83.8	7.5	8.7
Coast counties	13,903	11,582	1,042	1,279	83.3	7.5	9.2
Interior counties	5,922	5,041	441	440	85.1	7.5	7.4
Metropolitan area	10,969	9,139	806	1,024	83.3	7.4	9.3
Rural counties	8,856	7,481	677	695	84.5	7.6	7.9
1914.							
The State	31,902	26,517	2,710	2,675	83.1	8.5	8.4
Northern California	2,650	2,266	194	190	85.5	7.3	7.2
Coast counties	1,349	1,146	112	91	85.0	8.3	6.7
Interior counties	1,301	1,120	82	99	86.1	6.3	7.6
Central California	17,318	14,631	1,286	1,401	81.5	7.4	8.1
San Francisco	6,216	5,370	399	447	86.4	6.4	7.2
Other bay counties	4,250	3,479	313	428	81.8	8.1	10.1
Coast counties	1,903	1,588	166	149	83.5	8.7	7.8
Interior counties	4,949	4,194	378	377	84.8	7.6	7.6
Southern California	11,934	9,020	1,230	1,084	80.6	10.3	9.1
Los Angeles	7,441	6,014	748	679	80.8	10.1	9.1
Other counties	4,493	3,606	482	505	80.3	10.7	9.0
Northern and Central California ..	19,968	16,897	1,480	1,591	81.6	7.4	8.0
Coast counties	13,718	11,583	1,020	1,115	84.5	7.4	8.1
Interior counties	6,250	5,314	460	476	85.0	7.4	7.6
Metropolitan area	10,166	8,849	742	875	84.5	7.1	8.4
Rural counties	9,302	8,048	738	716	84.7	7.8	7.5

Table 2 shows that of the 31,451 grooms in 1915, some 25,871, or 82.3 per cent, were single; 2,716, or 8.6 per cent, were widowed; and 2,864, or 9.1 per cent, were divorced. Of the 31,902 grooms in 1914, the single were 26,517, or 83.1 per cent; the widowed 2,710, or 8.5 per cent; and the divorced 2,675, or 8.4 per cent. It may be noted that for records extending from 1906 the year 1915 is the first in which the number of divorced men among grooms surpassed the number of widowers remarrying, the excess for 1915 being 148 (2,864 divorced men against 2,716 widowers among grooms). However, there have been more divorcees than widows among brides in each of the past four years beginning with 1912.

The following tabular statement summarizes the per cents for the state for the ten years, 1906 to 1915:

Marital condition	Per cent of grooms										
	Annual average: 1906 to 1915	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906
State totals -----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Single -----	83.9	82.3	83.1	83.2	83.9	84.2	83.5	84.1	81.8	85.1	84.6
Widowed -----	8.8	8.6	8.5	8.7	8.3	8.5	8.8	9.0	9.3	9.2	9.3
Divorced -----	7.3	9.1	8.4	8.1	7.8	7.3	7.7	6.9	5.9	5.7	6.1

In the decade 1906 to 1915, the annual average per cent of grooms was 83.9 for the single, 8.8 for the widowed, and 7.3 for the divorced. The per cent of bachelor grooms, though increasing slightly in 1907 and again in 1911, decreased generally through the ten-year period from 84.6 in 1906 to only 82.3 in 1915. While the per cent of widowers among grooms varied only slightly through the period, falling merely from 9.3 in 1906 to 8.6 in 1915, yet the per cent of divorced men remarrying increased greatly in the ten years, rising sharply from merely 6.1 at the beginning to no less than 9.1 at the close of the decade just ended.

As compared with the average per cents for the ten-year period, the per cents for 1915 and 1914 were relatively low for bachelor grooms, almost up to the average for widowers marrying again, and very high indeed for divorced men remarrying.

It appears from Table 2, *ante*, that in 1915 and 1914 the proportion of bachelor grooms was highest for northern California and next for central California, being lowest by far for southern California.

The per cents single among grooms were slightly less each year for the metropolitan area than for the rural counties of northern and central California. However, there are wide differences in the metropolitan area between the per cents for San Francisco and the other bay counties. The per cent of bachelor grooms in the metropolis proper was about the highest among geographic divisions, but for the suburban counties each year was the lowest outside southern California. The per cents single among grooms were somewhat greater for Los Angeles than for the other counties south of Tehachapi.

Examination of Tables 9 and 10, *post*, shows that the individual counties in which at least 90.0 per cent of the grooms were single were (in 1915) Calaveras, El Dorado, Glenn, Lassen, Modoc, Mono and Tulare, and (in 1914) Alpine, Calaveras, Del Norte, Mariposa, Modoc, Mono, Nevada, Plumas and Trinity. On the other hand, those in which only 80.0 per cent or less of the grooms were bachelors were Alpine, Inyo, Los Angeles, Marin, Napa, Orange, Placer, Riverside, San Diego, San Mateo and Santa Cruz in 1915, and Colusa, Contra Costa, Napa, Orange, San Diego, San Mateo and Santa Barbara in 1914.

Reference to Table 2, *ante*, shows that the proportion of widowers among the grooms is much greater for southern California than for northern or central California. North of Tehachapi, the per cents were somewhat less for the metropolitan area than for the rural counties.

Within the metropolitan area, moreover, the per cents were very much less for San Francisco (with the minimum per cents widowed among geographic divisions) than for the group of other bay counties. In 1915 and 1914, the per cents widowed among grooms were not far from the same for Los Angeles as for the rest of southern California. Generally speaking, however, more widowers remarry in the rural counties than in metropolitan centers, and in the metropolitan district many more remarry in the suburbs than in the main city.

The individual counties (shown in Tables 9 and 10, *post*) in which widowers formed at least one-tenth (10.0 per cent) of all grooms in 1915 were: Fresno, Inyo, Marin, Napa, Placer, Shasta and Sierra, north of Tehachapi; and Los Angeles, Riverside and San Diego, in southern California. In 1914 the counties in which 10.0 per cent or more of all grooms were widowers were: Contra Costa, El Dorado, Fresno, Inyo, Napa, San Mateo, Santa Cruz and Sierra, in northern and central California; and Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara and Ventura, south of Tehachapi.

Further reference to Table 2, *ante*, shows that the proportion of divorced grooms, as of the widowed, is greater for the counties south of Tehachapi than for those to the north. The per cents divorced among brides were generally less each year for Los Angeles than for the other counties of southern California. North of Tehachapi, however, the per cents divorced were somewhat greater for the metropolitan area than for the rural counties. Within the metropolitan area the per cents divorced were much less in both 1915 and 1914 for San Francisco alone than for the group of other bay counties. Thus, not nearly so many divorced men remarry in the main city itself as in the adjoining suburban counties.

The counties (given in Tables 9 and 10, *post*), having at least 10.0 per cent of the grooms in 1915 divorced were: Alpine, Contra Costa, Inyo, Lake, Madera, Marin, Mariposa, Placer, Plumas, San Benito, San Mateo, Santa Cruz and Yolo, north of Tehachapi; and Orange, Riverside and San Diego, in southern California. The counties with at least one-tenth of the grooms in 1914 divorced men were: Colusa, Contra Costa, Glenn, Madera, Marin, Napa, Sacramento and San Mateo, in northern and central California; and Orange and Santa Barbara, south of Tehachapi. The per cent of divorced men among grooms was notably high in both 1915 and 1914 for Marin (11.9 and 11.0), and for San Mateo (15.2 and 10.9), adjoining San Francisco, as well as for Orange (12.6 and 11.1), adjoining Los Angeles.

Status of Brides.—The following table shows for the several geographic divisions in 1915 and 1914 the civil status or marital condition of the brides—whether single, widowed, or divorced—on the wedding day. Similar figures for individual counties, in alphabetical order, appear in Tables 9 and 10, *post*.

TABLE 3.—Brides Classified by Marital Condition, with Per Cents, for Geographic Divisions: 1915 and 1914.

Geographic division	Brides				Per cent		
	Total	Single	Wid-owed	Di-vorced	Single	Wid-owed	Di-vorced
1915.							
The State	31,451	24,610	3,159	3,682	78.2	10.1	11.7
Northern California	2,497	1,993	224	280	79.8	9.0	11.2
Coast counties	1,260	1,007	116	146	79.4	9.1	11.5
Interior counties	1,228	986	108	134	80.3	8.8	10.9
Central California	17,328	13,669	1,606	2,053	78.9	9.3	11.8
San Francisco	6,817	5,433	583	801	79.7	8.6	11.7
Other bay counties	4,152	3,199	414	539	77.0	10.0	13.0
Coast counties	1,665	1,313	151	201	78.8	9.1	12.1
Interior counties	4,694	3,721	458	512	79.3	9.8	10.9
Southern California	11,626	8,908	1,329	1,349	77.0	11.4	11.6
Los Angeles	6,981	5,468	785	728	78.3	11.3	10.4
Other counties	4,645	3,480	544	621	74.9	11.7	13.4
Northern and Central California	19,825	15,662	1,830	2,333	79.0	9.2	11.8
Coast counties	13,903	10,952	1,264	1,687	78.8	9.1	12.1
Interior counties	5,922	4,710	566	646	79.5	9.6	10.9
Metropolitan area	10,969	8,632	997	1,340	78.7	9.1	12.2
Rural counties	8,856	7,030	833	993	79.4	9.4	11.2
1914.							
The State	31,902	25,261	3,179	3,462	79.2	10.0	10.8
Northern California	2,660	2,117	230	303	79.9	8.7	11.4
Coast counties	1,309	1,069	133	147	79.2	9.9	10.9
Interior counties	1,301	1,048	97	156	80.5	7.5	12.0
Central California	17,318	13,820	1,596	1,902	79.8	9.2	11.0
San Francisco	6,216	5,138	476	602	82.7	7.6	9.7
Other bay counties	4,250	3,258	420	572	76.7	9.9	13.4
Coast counties	1,903	1,528	171	204	80.3	9.0	10.7
Interior counties	4,949	3,896	529	524	78.7	10.7	10.6
Southern California	11,934	9,324	1,353	1,257	78.2	11.3	10.5
Los Angeles	7,441	5,910	601	730	79.4	10.8	9.8
Other counties	4,493	3,414	552	527	76.0	12.3	11.7
Northern and Central California	19,968	15,987	1,826	2,205	79.8	9.2	11.0
Coast counties	13,718	10,993	1,200	1,525	80.1	8.8	11.1
Interior counties	6,250	4,944	626	680	79.1	10.0	10.9
Metropolitan area	10,466	8,396	896	1,174	80.2	8.6	11.2
Rural counties	9,502	7,541	930	1,031	79.4	9.8	10.8

It appears from this table that of 31,451 brides in 1913, the single numbered 24,610 or 78.2 per cent; the widowed 3,159, or 10.1 per cent; and the divorced 3,682, or 11.7 per cent. Of the 31,902 brides in 1914, altogether 25,261, or 79.2 per cent, were single; 3,179, or 10.0 per cent, were widowed; and 3,462, or 10.8 per cent, were divorced. It may be added that the divorcees surpassed the widows among brides much more in 1915 (523) and 1914 (283) than in 1913 (58) and 1912 (50). and that for every year prior to 1912 there was even an excess of widows over divorcees among those remarrying.

The tabular statement which follows gives a summary of the per cents for the state in the decade just closed:

Marital condition	Per cent of brides									
	Annual average 1906 to 1915	1915	1914	1913	1912	1911	1910	1909	1908	1907 1906
State totals -----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0 100.0
Single -----	80.7	78.2	79.2	79.6	80.6	80.7	80.5	81.6	81.6	82.6 81.9
Widowed -----	10.0	10.1	10.0	10.1	9.6	9.7	10.0	10.0	10.7	10.0 10.2
Divorced -----	9.3	11.7	10.8	10.3	9.8	9.6	9.5	8.4	7.7	7.4 7.9

In the ten years, 1906 to 1915, the annual average per cent of grooms was 80.7 for the single, 10.0 for widows, and 9.3 for divorcees. The per cent of spinster brides, though rising a little in 1907, and also in 1911, dropped generally throughout the ten years from 81.9 in 1906 to only 78.2 in 1915. While the per cent of widows among brides changed hardly at all through the period, being 10.2 in 1906 and 10.1 in 1915, yet the per cent of divorcees remarrying increased greatly from only 7.9 at the beginning to as much as 11.7 at the close of the decade. In fact, the per cent divorced among brides has risen steadily ever since 1907, as follows: 1907, 7.4; 1908, 7.7; 1909, 8.4; 1910, 9.5; 1911, 9.6; 1912, 9.8; 1913, 10.3; 1914, 10.8, and 1915, 11.7.

In comparison with the average per cents for the whole decade, the per cents for 1915 and 1914 were relatively low for spinster brides, about the average for widows remarrying, and notably high for divorcees marrying again.

It may be noted that in 1915 the widowed grooms numbered only 2,716 against 3,159 for the brides, and that in 1914 the widowers totaled 2,710 and the widows 3,179. That is, the widows outnumbered the widowers by 443, or 16.3 per cent, in 1915 and by 469, or 17.3 per cent, in 1914. Likewise, the divorced grooms in 1915 numbered only 2,864 and the brides 3,682, while in 1914, similarly, the divorced men remarrying totaled 2,675 and the women 3,462. In other words, the number of divorced women remarrying exceeded that of divorced men by 818, or 28.6 per cent in 1915 and by 787, or 29.4 per cent, in 1914.

It appears from Table 3, *ante*, that in 1915 and 1914 relatively more brides were spinsters in the counties north of Tehachapi than in those to the south.

The per cents single among brides were nearly the same for the metropolitan area as for the rural counties north of Tehachapi. However, the per cents of spinsters among brides for San Francisco alone were about the highest among geographic divisions, while the corresponding per cents for the suburban counties each year were the lowest outside southern California. The per cents single among brides were much higher in both 1915 and 1914 for Los Angeles than for the rest of southern California.

Examination of Tables 9 and 10, *post*, shows that the individual counties in which at least 90.0 per cent of the brides were single were Glenn and Lassen, in 1915, and Alpine, Amador, Del Norte and Sutter, in 1914. On the other hand, the counties in which only 80.0 per cent

or less of the brides were single, were: In 1915, Alameda, Colusa, Contra Costa, Del Norte, Imperial, Inyo, Kern, Los Angeles, Madera, Marin, Mono, Monterey, Napa, Orange, Placer, Plumas, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Trinity, Tuolumne and Yuba; and in 1914, Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Inyo, Kern, Lake, Los Angeles, Madera, Marin, Mendocino, Mono, Napa, Orange, Placer, Plumas, Sacramento, San Bernardino, San Diego, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Sonoma, Tehama, Trinity, Tuolumne, Ventura and Yolo.

Reference to Table 3, *ante*, shows that the proportion of widows among brides, as of widowers among grooms, is much higher for southern California than for northern or central California. The per cents for widows among brides in 1915 and 1914 were somewhat less for Los Angeles than for the other counties south of Tehachapi. The per cents were also slightly less for the metropolitan area than for the rural counties of northern and central California. The per cents widowed were about the lowest of all each year for San Francisco but on the other hand were about the highest outside southern California for the group of other bay counties. As with widowers, so with widows, somewhat more remarry in the country districts than in urban centers, and, in the latter, many more remarry in the suburbs than in the metropolis proper.

The individual counties (shown in Tables 9 and 10, *post*) in which widows formed at least one-tenth (10.0 per cent) of all brides in 1915 were Colusa, Fresno, Inyo, Kings, Madera, Marin, Monterey, Napa, Nevada, Placer, Sacramento, San Benito, San Joaquin, Shasta, Sierra, Solano, Sonoma, Trinity and Yuba, in northern and central California; and Los Angeles, Orange, San Bernardino, San Diego and Ventura, in southern California. In 1914 the counties in which 10.0 per cent or more of the brides were widows, were: North of Tehachapi, Butte, Fresno, Inyo, Kern, Lake, Madera, Marin, Mariposa, Mendocino, Napa, Plumas, Sacramento, San Joaquin, Sierra, Tehama, Tuolumne and Yolo; and south of Tehachapi, Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura.

Further reference to Table 3, *ante*, shows that the proportion of divorced brides, unlike that of grooms, is slightly less for southern California than for northern or central California. The per cents divorced were less both years for Los Angeles (about the minimum among geographic divisions) than for the other counties south of Tehachapi. In northern and central California, however, the per cents divorced among brides were somewhat greater for the metropolitan area each year than for the outlying rural counties. Within the metropolitan area, on the contrary, the per cent of divorced brides (as of grooms) is much less for San Francisco than for the other bay counties, the suburban counties showing about the maximum per cents among geographic divisions in 1915 and 1914 for divorcees among brides. While there is not a very marked difference between the metropolitan area and the rural districts in the per cent divorced, whether among grooms or brides, yet there is a sharp contrast between the metropolis proper and the surrounding suburbs in the proportion of

divorced persons among those remarrying, since both divorcees and divorced men remarry much less in the main city than in the adjacent suburbs.

The individual counties (given in Tables 9 and 10, *post*) in which at least 10.0 per cent of all brides in 1915 were divorced were: Alameda, Alpine, Butte, Contra Costa, Del Norte, El Dorado, Humboldt, Inyo, Kern, Lake, Madera, Marin, Mariposa, Modoc, Mono, Monterey, Napa, Placer, Plumas, Sacramento, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Siskiyou, Solano, Sonoma, Tehama, Tuolumne, Yolo and Yuba, in northern and central California; and Imperial, Los Angeles, Orange, San Bernardino, San Diego and Santa Barbara, in southern California. The counties with 10.0 per cent or more divorced brides in 1914 were: North of Tehachapi, Alameda, Butte, Colusa, Contra Costa, Glenn, Kern, Kings, Lassen, Marin, Mendocino, Mono, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Tehama, Trinity, Tuolumne, Yolo and Yuba; and south of Tehachapi, Imperial, Orange and San Diego. The per cent of divorced brides was particularly high each year for Marin (17.3 in 1915 and 19.3 in 1914), and for San Mateo (18.2 and 16.6), adjacent to San Francisco, as well as for Orange (13.6 and 16.4), adjacent to Los Angeles.

In general, the proportion widowed and divorced, both among grooms and brides, is notably high for counties like Marin and San Mateo in the north and Orange in the south, adjacent to the great cities of San Francisco and Los Angeles. Analysis of marriage rates showed that there is a tendency on the part of many couples belonging to these cities to go to the suburbs to be married. This preference for a suburban town rather than the city proper as a place of marriage is most marked on the part of widowed and divorced persons marrying again, especially on the part of the divorced. The secretive divorcee even more than the coy spinster seeks the privacy of a Gretna Green outside the home county.

The Widowed and Divorced.—Statistics for California for several years past show that the proportion of bachelors among grooms and of spinsters among brides is diminishing somewhat, while in both instances the proportions widowed and divorced, especially the latter, are growing notably. Although the great bulk of marriages in this state occur between single men and single women, yet the most striking gains are shown by persons of former matrimonial experience, particularly those for whom the previous marriage was ended by divorce rather than death.

The following tabular statement summarizes for California certain data available for only the nine years, 1907 to 1915, the figures for last year being contrasted with those for the first year covered by special tabulations and the annual average per cents for the nine-year period being presented also as additional information in point.

Marital condition	Marriages		Per cents		Annual average per cent: 1907 to 1915
	1915	1907	1915	1907	
State totals -----	31,451	23,005	100.0	100.0	100.0
Bachelors with-----	25,871	19,573	82.3	85.1	83.8
Spinsters -----	21,903	17,253	69.9	75.0	72.7
Widows -----	1,643	1,263	5.3	5.5	5.3
Divorcees -----	2,235	1,067	7.1	4.6	5.8
Widowers or divorced men with-----	5,580	3,432	17.7	14.9	16.2
Spinsters -----	2,617	1,742	8.3	7.6	7.9
Widows -----	1,516	1,019	4.8	4.5	4.7
Divorcees -----	1,447	641	4.6	2.8	3.6
Spinsters with-----	24,610	18,995	78.2	82.6	80.5
Bachelors -----	21,903	17,253	69.9	75.0	72.7
Widowers -----	1,150	1,087	3.6	4.5	4.0
Divorced men -----	1,467	705	4.7	3.1	3.8
Widows or divorcees with-----	6,841	4,010	21.8	17.4	19.5
Bachelors -----	3,878	2,320	12.4	10.1	11.1
Widowers -----	1,568	1,069	5.0	4.6	4.7
Divorced men -----	1,395	621	4.4	2.7	3.7

Analysis of these figures indicates that bachelors find divorcees very attractive indeed. The weddings between bachelors and divorcees totaled 2,235 in 1915, or 7.1 per cent of all marriages, while unions between bachelors and widows were only 1,643, or 5.3 per cent of all. In 1907 (as well as in 1908 and 1909), there were more marriages of bachelors with widows than with divorcees. Moreover, the recent tendency for bachelors to marry divorcees has been increasing continuously. Thus, the per cent of total marriages which were unions between bachelors and divorcees rose successively in the whole nine years from 1907 to 1915 as follows: 4.6, 4.9, 5.2, 5.8, 5.9, 6.1, 6.2, 6.7 and 7.1.

In less degree than between bachelors and divorcees, marriages also occur between single women and divorced men somewhat more than between spinsters and widowers. The marriages of single women and divorced men were 1,467, or 4.7 per cent of all, in 1915, as compared with merely 1,150, or 3.6 per cent, for those uniting spinsters with widowers. Furthermore, while there were more marriages of bachelors with divorcees than with widows for as many as six years beginning with 1910, there were more weddings of spinsters with divorced men than with widowers only for the four years beginning with 1912. This explanation based on the extended tables from which the above tabular statement was compiled, accounts for the fact that the annual average per cents for the whole nine years covered show relatively more marriages between bachelors and divorcees (5.8) than between bachelors and widows (5.3), but in contrast with the per cents for 1915 also show slightly more unions of spinsters with widowers (4.0) than of spinsters with divorced men (3.8).

In contrast with the preference of bachelors and spinsters for the divorced rather than for the widowed, it seems that where men or women who have been married before wed again with those of like prior experience, the mate chosen is more often a widow or widower bereft by death than a person of either sex left alone by court decree.

In 1915, the marriages of widowers or divorced men with widows totaled 1,516, or 4.8 per cent of the aggregate, against merely 1,447, or 4.6 per cent, for such marriages with divorcees. Similarly, the weddings of widows or divorcees with widowers were 1,568, or 5.0 per cent, against only 1,395, or 4.4 per cent, for such unions with divorced men. The annual average per cents for the nine years, 1907 to 1915, for which the data are available likewise, show that the average per cent for marriages of widowers or divorced men with widows was 4.7 against merely 3.6 for such marriages with divorcees, and also that the average per cent for marriages of widows or divorcees with widowers was 4.7 against only 3.7 for such marriages with divorced men.

NATIVITY OF CALIFORNIA BRIDES.

Race and Nativity.—The table below gives for California in 1915 and 1914 a classification of brides by race, nativity and marital condition, as well as the per cent distribution by marital condition. The table also shows, for both years, the racial distinction of the non-Caucasian brides.

TABLE 4.—Brides Classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for California: 1915 and 1914.

Race or nativity	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
1915							
The State	31,451	24,610	3,159	3,682	78.2	10.1	11.7
White	30,011	23,241	3,051	3,619	77.8	10.2	12.0
Born in California	10,609	9,107	589	1,113	84.3	5.4	10.3
Born in other states	13,628	9,832	1,655	2,041	72.9	12.1	15.0
Foreign born	5,574	4,302	807	465	77.2	14.5	8.3
Non-Caucasian	1,440	1,289	108	63	88.1	7.5	4.4
Negro	415	284	85	46	68.4	20.5	11.1
Indian	67	59	5	3	88.0	7.5	4.5
Chinese	51	46	4	1	90.2	7.8	2.0
Japanese	907	880	14	13	97.0	1.6	1.4
1914							
The State	31,902	25,261	3,179	3,462	79.2	10.0	10.8
White	30,445	24,023	3,043	3,379	78.9	10.0	11.1
Born in California	11,073	9,439	631	1,003	85.2	5.7	9.1
Born in other states	13,183	9,644	1,612	1,927	73.2	12.2	14.6
Foreign born	6,189	4,940	800	449	79.8	12.9	7.3
Non-Caucasian	1,457	1,236	136	83	85.0	9.3	5.7
Negro	469	290	107	72	61.8	22.8	15.4
Indian	64	56	4	4	87.5	6.3	6.2
Chinese	37	27	8	2	73.0	21.6	5.4
Japanese	887	865	17	5	97.5	1.9	0.6

Considering first the non-Caucasian brides, one will observe that among them the per cents single were 88.1 in 1915 and 85.0 in 1914; the widowed, 7.5 and 9.3; and the divorced, 4.4 and 5.7. For the ten years, 1906 to 1915, the annual average per cents for all non-Caucasian brides together were as follows: Single, 80.6; widowed, 12.3; and divorced, 7.1.

The racial distinction of non-Caucasian brides is available for only the five years, 1911 to 1915, the annual average per cents for this five-year period being shown in the following tabular statement:

Race	Annual average per cent of non-Caucasian brides: 1911 to 1915			
	Total	Single	Widowed	Divorced
State totals -----	100.0	86.4	8.1	5.5
Negro -----	100.0	65.9	20.2	13.9
Indian -----	100.0	84.9	8.4	6.7
Chinese -----	100.0	85.8	11.2	3.0
Japanese -----	100.0	97.7	1.5	0.8

The per cents for 1915 and 1914 in Table 4, *ante*, are less convenient for comparisons between the races than the annual average per cents for 1911 to 1915. The annual averages show that the per cent single was 97.7 among Japanese brides, 85.8 among the Chinese, 84.9 among Indians, and only 65.9 among Negro brides. The average per cent widowed was 20.2 for Negro brides, but only 11.2 for Chinese and 8.4 for Indians, being merely 1.5 for Japanese. Similarly, the average per cent divorced was 13.9 for Negro brides, but only 6.7 for Indians and 3.0 for Chinese, being merely 0.8 for Japanese brides.

The per cents for non-Caucasians differ greatly from the per cents for white brides, the proportion of single brides among the non-Caucasians being relatively large on account of the preponderance of single brides among the Japanese, now the most numerous non-Caucasian element in the population of California. Incidentally, it may be noted that over nine-tenths of all marriages of Japanese in California take place at San Francisco, the per cent of all Japanese marriages in the state occurring at this port being 94.7 for 1915 and 93.9 for 1914, while the annual average per cent was 94.3 for 1911 to 1915. It seems that expectant Japanese bridegrooms from various points in the interior assemble at San Francisco to await the arrival of trans-Pacific steamships bringing groups of "picture brides" direct from the Flowery Kingdom, since the certificates for Japanese weddings are filed in dozens after the ships reach port.

However, the 1,440 non-Caucasian brides in 1915 and the 1,457 in 1914, form only 4.6 of the state total each year. The Japanese brides in 1915 and 1914 numbered 907 and 887, representing per cents of 2.9 and 2.8 of state aggregates; the Negro brides numbered 415 and 469 (or 1.3 and 1.5 per cent); the Indian brides 67 and 64 (or 0.2 per cent each year); and the Chinese brides 51 and 37 (or 0.2 and 0.1 per cent). On account of the relatively small (though generally increasing) proportion of non-Caucasians among California brides, and also because of the wide divergence between the non-Caucasian races in this state (with Japanese and Chinese from the Orient outnumbering somewhat American-born Negroes and Indians), attention will be directed in the following discussion only to the facts for the whites.

Of the 30,011 white brides in 1915 and the 30,445 in 1914, shown in Table 4, *ante*, the single were 23,341 and 24,023, respectively, the widowed 3,051 and 3,043; and the divorced 3,619 and 3,379.

The white brides born in California numbered 10,809 and 11,073 in 1915 and 1914, and among them there were, respectively, 9,107 and 9,439 single, 589 and 631 widowed, and 1,113 and 1,003 divorced.

The brides born in other states totaled 13,628 and 13,183 in 1915 and 1914, of whom the single were, respectively, 9,932 and 9,644, the widowed 1,655 and 1,612, and the divorced 2,041 and 1,927.

The foreign born white brides were 5,574 in 1915 and 6,189 in 1914, among whom there were, respectively, 4,302 and 4,940 single, 807 and 800 widowed, and 465 and 449 divorced.

Analysis of the per cents in Table 4 for various classes of white brides is aided by the presentation in the following tabular statement of the annual averages for the ten-year period just ended:

Nativity	Annual average per cent of white brides: 1906 to 1915			
	Total	Single	Widowed	Divorced
State totals	100.0	80.6	10.0	9.4
Born in California.....	100.0	86.4	5.8	7.8
Born in other states.....	100.0	75.3	12.4	12.3
Foreign born	100.0	80.2	13.5	6.3

The per cents for spinsters among all white brides in both 1915 and 1914, 77.8 and 78.9, respectively, stand somewhat below the annual average of 80.6 for 1906 to 1915. The per cents for widowed brides, 10.2 and 10.0, are about the same as the average of 10.0, while the per cents for the divorced, 12.0 and 11.1, rise far above the average of 9.4 for the whole ten years. It may be added that the per cent divorced among all white brides increased quite steadily throughout the decade just ended, as follows: 7.8 (1906), 7.4, 7.7, 8.4, 9.6, 9.7, 10.0, 10.5, 11.1 and 12.0 (1915).

Among white brides born in California, the per cents single in 1915 and 1914, respectively, 84.3 and 85.2, fall considerably below the average of 86.4; the per cents widowed, 5.4 and 5.7, are nearly the same as the average of 5.8; and the per cents divorced, 10.3 and 9.1, stand much above the average of 7.8. The per cent divorced among native Californian brides rose successively through the ten-year period thus: 6.6 (1906), 6.0, 6.3, 7.0, 7.7, 8.0, 8.3, 8.9, 9.1 and 10.3 (1915).

Among white brides born in other states the per cents single in the last two years, 72.9 and 73.2, drop considerably below the average of 75.3 for the ten-year period; the per cents widowed, 12.1 and 12.2, are almost the same as the average of 12.4; and the per cents divorced, 15.0 and 14.6, rise much higher than the average of 12.3. Among brides born in other states the per cents for divorcees were successively 10.4, 10.0, 10.4, 11.1, 12.8, 12.8 again, 13.1, 13.4, 14.6 and 15.0 in 1906 to 1915, increasing generally through the whole ten years.

Among foreign born white brides, the per cents for spinsters in 1915 and 1914, 77.2 and 79.8, are somewhat below the average of 80.2 for 1906 to 1915; the per cents for widows, 14.5 and 12.9, are one above and one below the average of 13.5; and the per cents for divorcees, 8.3 and 7.3, stand somewhat above the average of 6.3. The per cents divorced among foreign born brides were successively 5.1, 4.8, 5.3, 6.0,

6.6, 6.3, 6.4, 7.1, 7.3 and 8.3, in 1906 to 1915, having fluctuated during the decade while increasing in the five years last past. Moreover, the per cent of divorcees among foreign born white brides, 6.3, as an average for the whole ten-year period just ended, is much less than among brides born in California, 7.8, and very much less indeed than among brides born in other states, 12.3.

Status of White Brides.—Table 5 below, shows, by numbers and per cents, the civil status or marital condition of the white brides at the time of marriage—whether single, widowed, or divorced—for the several geographic divisions of the state in both 1915 and 1914.

TABLE 5.—White Brides Classified by Marital Condition, with Per Cents, for Geographic Divisions: 1915 and 1914.

Geographic division	White brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
1915							
The State	30,011	23,341	3,061	3,619	77.8	10.2	12.0
Northern California	2,444	1,945	221	278	79.6	9.0	11.4
Coast counties	1,237	975	116	146	78.8	9.4	11.8
Interior counties	1,207	970	105	132	80.4	8.7	10.9
Central California	16,234	12,652	1,554	2,028	77.9	9.6	12.5
San Francisco	5,889	4,534	566	789	77.0	9.6	13.4
Other bay counties	4,076	3,146	396	534	77.2	9.7	13.1
Coast counties	1,664	1,307	148	199	79.0	9.0	12.0
Interior counties	4,615	3,665	444	506	79.4	9.6	11.0
Southern California	11,333	8,744	1,276	1,313	77.2	11.2	11.6
Los Angeles	6,777	5,332	741	704	78.7	10.9	10.4
Other counties	4,556	3,412	535	609	74.9	11.7	13.4
Northern and Central California	18,678	14,597	1,775	2,306	78.2	9.5	12.3
Coast counties	12,856	9,962	1,226	1,668	77.5	9.5	13.0
Interior counties	5,822	4,635	549	638	79.6	9.4	11.0
Metropolitan area	9,965	7,680	962	1,323	77.1	9.6	13.3
Rural counties	8,713	6,917	813	983	79.4	9.3	11.3
1914							
The State	30,445	24,023	3,043	3,379	78.9	10.0	11.1
Northern California	2,588	2,063	224	301	79.7	8.7	11.6
Coast counties	1,330	1,053	131	146	79.2	9.8	11.0
Interior counties	1,258	1,010	93	155	80.3	7.4	12.3
Central California	16,242	12,345	1,534	1,863	79.1	9.4	11.5
San Francisco	5,332	4,282	457	593	80.3	8.6	11.1
Other bay counties	4,168	3,207	404	557	76.9	9.7	13.4
Coast counties	1,888	1,518	169	201	80.4	9.0	10.6
Interior counties	4,854	3,338	504	512	79.1	10.4	10.5
Southern California	11,615	9,115	1,285	1,215	78.4	11.1	10.5
Los Angeles	7,211	5,762	753	696	79.9	10.4	9.7
Other counties	4,404	3,353	532	519	76.1	12.1	11.8
Northern and Central California	18,830	14,908	1,758	2,164	79.2	9.3	11.6
Coast counties	12,718	10,080	1,161	1,497	79.1	9.1	11.8
Interior counties	6,112	4,848	597	667	79.3	9.8	10.9
Metropolitan area	9,500	7,489	861	1,150	78.8	9.1	12.1
Rural counties	9,330	7,419	897	1,014	79.5	9.6	10.9

This table shows that the per cent of spinsters among white brides was somewhat higher in both 1915 and 1914 for the counties north of Tehachapi than for those to the south. The per cents single were slightly less for the metropolitan area than for the rural counties north of Tehachapi, but were greater in general for the metropolis proper than for the suburban counties. The per cent of spinsters among brides was much greater each year for Los Angeles than for the rest of southern California.

The proportion of widows among brides is considerably higher for southern California than for northern or central California. The per cents widowed were about the same for the metropolitan area as for the rural counties north of Tehachapi but within the metropolitan area were less for San Francisco alone than for the group of other bay counties. The per cent of widows was also much less in both 1915 and 1914 for Los Angeles than for the other counties south of Tehachapi. Of white widows it may therefore be said, in general, as of widowers and widows of all races taken together, that more remarry in rural districts than in urban centers, but that in the metropolitan area more remarry in the suburbs than in the main city.

The proportion of divorcees among white brides, unlike that of widows, is somewhat less for the counties south of Tehachapi than for those to the north. The per cents divorced in 1915 and 1914 were much greater for the metropolitan area than for the rural counties north of Tehachapi. Within the metropolitan area, however, the proportion of divorcees is generally less for San Francisco than for the other bay counties. The per cents divorced are also much less for Los Angeles than for the rest of southern California. Divorcees, unlike widows, remarry more in the metropolitan area than in the rural counties, while both divorcees and widows, like divorced men and widowers, remarry more in the suburbs of a great city than within the metropolis itself.

Status of White Brides (by Nativity).—The following table shows, for the several geographic divisions in 1915 and 1914, the civil status or marital condition—as single, widowed, or divorced—of the white brides classified by nativity—as born in California, born in other states, or foreign born. For convenience in presentation, the absolute numbers are omitted and only the per cent distributions are given here. The absolute numbers may be found, however, in Tables 11 and 12, *post*.

TABLE 6.—Per Cent Distribution, by Marital Condition, of White Brides Classified by Nativity, for Geographic Divisions: 1915 and 1914.

Geographic division	White brides								
	Per cent single among those—			Per cent widowed among those—			Per cent divorced among those—		
	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
1915									
The State	84.3	72.9	77.2	5.4	12.1	14.5	10.3	15.0	8.3
Northern California	85.5	71.0	72.6	5.6	12.6	16.4	8.9	16.4	11.0
Coast counties	85.5	66.7	73.4	5.0	14.7	16.9	9.5	18.6	9.7
Interior counties	85.4	74.3	71.2	6.3	11.0	15.3	8.3	14.7	13.5
Central California	83.6	70.2	78.3	5.5	12.8	13.1	10.9	17.0	8.6
San Francisco	82.5	66.1	80.9	5.4	14.1	10.9	12.1	19.8	8.2
Other bay counties	83.5	68.9	76.0	5.8	12.4	14.5	10.7	18.7	9.5
Coast counties	85.8	68.9	76.9	3.8	14.9	14.1	10.4	16.2	9.0
Interior counties	84.3	75.5	75.8	5.9	11.2	16.0	9.3	13.3	8.2
Southern California	85.5	75.1	75.8	5.3	11.6	16.7	9.2	13.3	7.5
Los Angeles	86.8	77.5	75.4	4.8	10.8	17.4	8.4	11.7	7.2
Other counties	84.1	71.4	76.4	5.9	12.9	15.5	10.0	15.7	8.1
Northern and Central California	83.0	70.3	77.9	5.5	12.8	13.3	10.6	16.9	8.8
Coast counties	83.6	67.5	78.7	5.3	13.7	12.6	11.1	18.8	8.7
Interior counties	84.6	75.3	75.3	6.0	11.1	15.9	9.4	13.6	8.8
Metropolitan area	82.9	67.3	79.3	5.6	13.4	12.1	11.5	19.3	8.6
Rural counties	85.0	73.3	75.3	5.4	12.1	15.7	9.6	14.6	9.0
1914									
The State	85.2	73.2	79.8	5.7	12.2	12.9	9.1	14.6	7.3
Northern California	84.2	71.7	79.4	6.1	10.8	14.1	9.7	17.5	6.5
Coast counties	83.8	68.3	80.7	7.1	13.3	13.4	9.1	18.4	5.9
Interior counties	84.8	74.3	76.7	5.0	8.9	15.5	10.2	16.8	7.8
Central California	84.6	70.4	79.9	5.9	12.7	12.0	9.5	16.9	8.1
San Francisco	85.5	68.3	82.7	5.8	12.5	9.3	8.7	19.2	8.0
Other bay counties	82.2	68.6	77.4	6.0	13.2	13.0	11.8	18.2	9.6
Coast counties	87.6	70.5	75.6	4.5	12.6	15.6	7.9	16.9	8.8
Interior counties	84.4	73.0	78.9	6.6	12.7	14.8	9.0	14.3	6.3
Southern California	88.2	75.2	79.7	4.7	12.0	14.5	7.1	12.8	5.8
Los Angeles	88.9	76.9	81.7	4.9	11.1	13.5	6.2	12.0	4.8
Other counties	87.4	72.4	73.7	4.4	13.6	16.1	8.2	14.0	7.9
Northern and Central California	84.5	70.5	79.9	6.0	12.5	12.2	9.5	17.0	7.9
Coast counties	84.5	68.7	80.3	5.8	12.8	11.3	9.7	18.5	8.4
Interior counties	84.5	73.3	78.7	6.2	11.9	14.8	9.3	14.8	6.5
Metropolitan area	83.9	68.4	80.9	5.9	12.8	10.5	10.2	18.8	8.6
Rural counties	85.1	72.3	78.3	6.0	12.2	11.8	8.9	15.5	6.9

Table 6 shows that the per cents single were no less than 84.3 in 1915 and 85.2 in 1914, among white brides born in California, as compared with 77.2 and 79.8 among foreign born white brides and only 72.9 and 73.2 among those born in other states, the average per cents for 1906 to 1915 being 86.4 for California born brides, 80.2 for the foreign, and merely 75.3 for brides born in other states. For every geographic division in both 1915 and 1914, without exception, the per cent single is highest of all among brides born in California. As a rule, too, the per cent single is next highest among foreign born brides and lowest of all among those born elsewhere in the United States than here, slight exceptions appearing for only two minor geographic divisions in 1915 alone.

In both 1915 and 1914 the per cent was much higher for each class of brides in Los Angeles (except only the foreign born in 1915 alone) than for those in the other counties of southern California. However, for the metropolitan area, as compared with the rural counties north of Tehachapi, the per cent single was higher each year for the former than for the latter only in the case of foreign born brides.

The per cents widowed were no less than 14.5 and 12.9 among foreign born brides and 12.1 and 12.2 among those born in other states against merely 5.4 and 5.7 among white brides born in California, the average per cents for the ten years last past being 13.5 for the foreign born and 12.4 for other Americans, but merely 5.8 for native Californians. In general, the per cent widowed in 1915 and 1914 was highest of all among foreign born white brides, slight exceptions appearing for only San Francisco and one other minor geographic division in either year. Without exception, the per cent widowed is decidedly lowest among white brides born in the Golden State.

In general, though with some slight exceptions, the per cent widowed was less among each class by nativity for Los Angeles than for the rest of southern California; for the metropolitan area than for the rural counties north of Tehachapi; and for San Francisco than for the other bay counties. No marked exceptions appear in either 1915 or 1914 to the general rule that in each element of the population more widows remarry in rural districts than in urban centers, and in the latter more remarry in the suburbs than in the main city.

The per cents divorced were as great as 15.0 and 14.6 in 1915 and 1914, among white brides born in other states, but only 10.3 and 9.1 among those born in California, and merely 8.3 and 7.3 among the foreign born, the average per cents for 1906 to 1915 being 12.3 for other Americans, but merely 7.8 for Californians and 6.3 for the foreign born. Everywhere in California in both 1915 and 1914, generally speaking, the per cent divorced was greatest among brides born in other states, next among those born in this state, and lowest of all among the foreign born. Slight exceptions to the rule, due to unusually high per cents divorced among foreign born brides, appear for the coast and interior counties of northern California in 1915 as well as for the coast counties of central California in 1914.

The per cent divorced was much less in both 1915 and 1914 among all classes of brides in Los Angeles than in the other counties of southern California, without any exception whatever, and was likewise generally less for each element except other Americans in San Francisco

than in the adjoining bay counties. However, the per cents divorced were greater each year for the metropolitan area than for the rural counties north of Tehachapi for each class of brides with only a slight exception for the foreign born in 1915 alone. The rule that widows remarry more in rural districts than in urban centers holds good, generally speaking, for each class of white brides, whether born in California, in other states, or in foreign countries. Similarly, the rule that divorcees, unlike widows, remarry more in the metropolitan area than in the rural counties holds true quite generally for each of the three elements of the population. Divorcees and widows are alike, however, in that for substantially each element of the population—Californian, other American, or foreign—somewhat more remarry in the suburban territory than within the metropolis proper.

Nativity of White Brides.—The following table shows, by numbers and per cents, the nativity of white brides—as born in California, born in other states, or foreign born—for the several geographic divisions in 1915 and 1914. Corresponding figures, with others, may be found for individual counties, arranged alphabetically, in Table 15, *post*.

TABLE 7.—White Brides Classified by Nativity, with Per Cents, for Geographic Divisions: 1915 and 1914.

Geographic division	White brides			Per cent			
	Total	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
1915.							
The State	30,011	10,809	13,628	5,574	36.0	45.4	18.6
Northern California	2,444	1,411	715	318	57.7	30.3	13.0
Coast counties	1,237	724	306	207	58.5	24.8	16.7
Interior counties	1,207	687	409	111	56.9	33.9	9.3
Central California	16,234	7,277	5,533	3,424	44.8	34.1	21.1
San Francisco	5,899	2,443	1,818	1,628	41.5	30.9	27.6
Other bay counties	4,076	1,935	1,350	791	47.5	33.1	19.4
Coast counties	1,654	867	531	256	52.4	32.1	15.5
Interior counties	4,615	2,032	1,834	749	44.0	39.8	16.3
Southern California	11,333	2,121	7,380	1,832	18.7	65.1	16.2
Los Angeles	6,777	1,119	4,483	1,175	16.5	66.2	17.3
Other counties	4,556	1,002	2,897	657	22.0	63.6	14.4
Northern and Central California...	18,078	8,698	6,248	3,742	48.5	33.5	20.0
Coast counties	12,856	5,969	4,005	2,882	46.4	31.2	22.4
Interior counties	5,222	2,719	2,243	860	46.7	38.5	14.8
Metropolitan area	9,965	4,378	3,168	2,419	43.9	31.8	21.3
Rural counties	8,713	4,310	3,080	1,323	49.5	35.3	15.3
1914.							
The State	30,445	11,073	13,183	6,189	36.4	43.3	20.3
Northern California	2,588	1,440	794	354	55.6	30.7	13.7
Coast counties	1,330	745	317	238	56.0	26.1	17.9
Interior counties	1,258	695	447	116	55.3	35.5	9.3
Central California	16,242	7,430	5,015	3,797	45.7	30.9	23.4
San Francisco	5,332	2,314	1,324	1,694	43.4	24.8	31.8
Other bay counties	4,168	2,010	1,288	870	48.2	30.9	20.9
Coast counties	1,888	965	538	366	52.2	28.5	19.3
Interior counties	4,854	2,121	1,965	868	43.7	38.4	17.9
Southern California	11,615	2,203	7,374	2,038	19.0	63.5	17.5
Los Angeles	7,211	1,251	4,618	1,342	17.4	64.0	18.6
Other counties	4,404	952	2,756	696	21.6	62.6	15.8
Northern and Central California...	18,830	8,870	5,809	4,151	47.1	30.9	22.0
Coast counties	12,718	6,064	3,497	3,167	47.6	27.5	24.9
Interior counties	6,112	2,816	2,312	984	46.1	37.8	16.1
Metropolitan area	9,500	4,321	2,612	2,564	45.5	27.5	27.0
Rural counties	9,330	4,548	3,197	1,587	48.7	34.3	17.0

It appears from this table that of 30,011 white brides in 1915 and 30,445 in 1914, those born in California were 10,809 and 11,073; those born in other states were 13,628 and 13,183; and the foreign born were 5,574 and 6,189. The per cents born in California were, respectively, 36.0 and 36.4; in other states, 45.4 and 43.3; and abroad, 18.6 and 20.3. It may be added that for 1906 to 1915 the annual average per cents were as follows: California, 38.8; other states, 41.7; and foreign, 19.5. It may be noted, also, that native daughters outnumbered brides born in other states in 1906 to 1909, but that for the six years, 1910 to 1915, other American brides have surpassed native Californians.

The proportion of native daughters among the brides is very high indeed for northern, as well as central, California, but very low indeed

for southern California with less than one-fifth of the brides born in this state. The per cents born in California were even less for Los Angeles than for the other counties of southern California. North of Tehachapi, likewise, the per cents were less for the metropolitan area than for the rural counties, and also less for San Francisco than for the other bay counties.

The proportion of brides born elsewhere in the United States than California is very high indeed (about two-thirds), for the counties south of Tehachapi, but is quite low for both northern and central California. The per cents for brides born in other states were somewhat greater in 1915 and 1914 for Los Angeles than for the other counties south of Tehachapi. The per cents born in other states were much less for the metropolitan area than for the rural counties north of Tehachapi and were likewise less for San Francisco than for the group of suburban counties.

The proportion of foreign born brides is notably high only for central California, especially in San Francisco and its suburbs. The per cents foreign born in 1915 and 1914 were as great as 27.6 and 31.8 for San Francisco, as compared with 19.4 and 20.9 for the other counties on the bay. Similarly, the per cents for foreign born brides were greater for Los Angeles each year than for the other counties south of Tehachapi.

Inspection of Table 15, *post*, shows that one-half or more of the white brides in both 1915 and 1914 were native daughters, the per cent being far above 50.0 in most cases, in the following thirty counties: Alpine, Amador, Calaveras, Colusa, El Dorado, Glenn, Humboldt, Lake, Lassen, Marin, Mariposa, Mendocino, Modoc, Mono, Monterey, Napa, Nevada, Plumas, San Benito, San Joaquin, San Luis Obispo, Shasta, Sierra, Solano, Sonoma, Sutter, Trinity, Tuolumne, Yolo and Yuba. The per cent was also over 50.0 for Santa Cruz and Tehama in 1915 alone, as well as for Placer, Sacramento and San Mateo in 1914 only.

In contrast with the long list of counties, all north of Tehachapi, with half the brides born in California, the counties with at least this proportion of white brides born in other states include only Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego and Tulare, in both 1915 and 1914, all of these few counties being in or near southern California.

Moreover, at least one-fourth (25.0 per cent) of the white brides were foreign born only in Amador, besides San Francisco, for both 1915 and 1914, though at least 25.0 per cent of the brides were born abroad also in Alpine and Kings for 1915 alone, and in Humboldt and Mono for 1914 alone. The per cents for Alpine and Mono are negligible, however, on account of the small numbers involved, the proportion of brides born abroad being really highest each year for San Francisco.

Nativity of White Brides (by Status).—Table 8, below, shows for the several geographic divisions in 1915 and 1914, the nativity (as born in California, born in other states, or foreign born) of white brides classified by civil status or marital condition—as single, widowed or divorced. For convenience in presentation, only the per cent distributions are given here, though the absolute numbers appear in Tables 13 and 14, *post*.

TABLE 2.—Per Cent Distribution, by Nativity, of White Brides, Classified by Marital Condition, for Geographic Divisions: 1915 and 1914.

Geographic Division	White brides								
	Per cent born in California among the—			Per cent born in other states among the—			Per cent foreign born among the—		
	Single	Wid- owed	Di- vorced	Single	Wid- owed	Di- vorced	Single	Wid- owed	Di- vorced
1915.									
The State	39.4	19.1	30.8	42.6	54.2	58.4	18.4	26.5	12.8
Northern California	42.0	35.8	45.3	38.1	49.7	42.1	11.9	22.5	12.4
Coast counties	43.5	31.0	47.3	39.9	38.8	39.0	15.6	30.1	13.7
Interior counties	40.5	40.9	43.2	31.3	42.9	45.4	8.2	16.2	11.4
Central California	40.1	25.6	39.1	39.7	45.6	46.5	21.2	28.8	14.4
San Francisco	44.4	23.3	37.5	28.5	45.4	45.5	29.1	31.2	17.0
Other bay counties	51.3	28.5	38.8	29.6	42.4	47.2	19.1	29.1	14.0
Coast counties	54.9	22.3	45.2	28.0	52.4	43.2	15.1	24.3	11.6
Interior counties	46.7	28.8	39.5	37.8	46.2	48.4	15.5	27.0	12.1
Southern California	30.7	8.8	14.8	63.4	67.1	74.8	15.9	24.1	10.4
Los Angeles	18.2	7.3	13.4	65.2	65.0	74.7	16.6	27.7	11.9
Other counties	24.7	11.0	16.4	60.6	69.9	74.9	14.7	19.1	8.7
Northern and Central California	40.9	26.8	39.9	30.1	45.0	45.9	20.0	28.2	14.2
Coast counties	50.1	25.6	39.7	27.1	44.8	45.2	22.8	29.6	15.1
Interior counties	49.6	29.5	40.3	36.4	45.5	47.8	14.0	25.0	11.9
Metropolitan area	47.3	25.5	38.0	27.7	44.2	46.2	25.0	30.3	15.8
Rural counties	53.0	28.4	42.3	32.6	46.0	45.6	14.4	25.6	12.1
1914.									
The State	39.3	20.7	29.7	40.1	53.0	57.0	20.6	26.3	13.3
Northern California	38.8	39.3	46.2	27.6	38.4	46.2	13.6	22.3	7.6
Coast counties	39.3	40.5	46.6	22.5	35.1	43.8	18.2	24.4	9.6
Interior counties	38.3	37.6	45.8	32.9	43.0	48.4	8.8	19.4	5.6
Central California	48.9	28.7	38.0	27.5	41.6	45.5	23.6	29.7	16.5
San Francisco	46.2	29.5	34.1	21.1	36.1	43.0	32.7	24.4	22.9
Other bay counties	51.5	29.9	42.7	27.5	42.1	42.2	21.0	28.0	15.1
Coast counties	56.8	26.0	38.8	25.0	40.3	45.3	18.2	33.7	15.9
Interior counties	46.7	27.8	37.1	35.5	46.8	52.2	17.8	25.4	10.7
Southern California	21.3	8.0	12.8	60.9	69.0	77.4	17.8	23.0	9.2
Los Angeles	19.3	8.1	11.2	61.7	67.9	79.6	19.0	24.0	9.2
Other counties	24.8	7.9	15.0	59.5	70.7	74.4	15.7	21.4	10.4
Northern and Central California	50.3	30.0	39.1	27.5	41.3	45.6	22.2	28.7	15.5
Coast counties	50.8	30.4	39.1	23.9	38.7	43.1	25.3	30.9	17.8
Interior counties	49.1	29.3	39.1	34.9	46.2	51.3	16.0	24.5	9.6
Metropolitan area	48.4	29.7	38.3	23.9	38.9	42.6	27.7	31.4	19.1
Rural counties	52.1	30.3	40.1	31.1	43.5	49.0	16.8	26.2	10.9

Analysis of the per cents for the state in Table 8, as well as for Table 7, preceding it, is facilitated by the annual averages for 1906 to 1915, presented in the following tabular statement:

Marital condition	Annual average per cent of white brides: 1906 to 1915			
	Total	Born in California	Born in other states	Foreign born
State totals	100.0	38.8	41.7	19.5
Single	100.0	41.6	38.9	19.5
Widowed	100.0	22.3	51.5	26.2
Divorced	100.0	32.1	54.8	13.1

It appears from Table 8 that in 1915 and 1914, respectively, the per cents born in California among spinster brides were 39.0 and 39.3, against the average of 41.6 shown in the tabular statement; among the divorced were 30.8 and 29.7 against the average of 32.1; and among the widowed were only 19.3 and 20.7 against the average of 22.3. Throughout California both years the native daughters formed a very large part of the single brides and a large proportion of the divorced, but only a small proportion of the widowed brides.

The per cents born in the Golden State among the single, widowed, and divorced brides were very much less for southern California each year than for northern or central California. Generally speaking, the per cents born in California were also less for Los Angeles in all cases than for the other counties south of Tehachapi, the only exception being for widowed brides in 1914. Without exception, the per cents born in this state were likewise less for the metropolitan area than for the rural counties north of Tehachapi. Likewise, without any exception whatever, the rule is also that within the metropolitan area the proportion of native daughters among each class of brides is less for the metropolis proper than for the surrounding suburbs.

In 1915 and 1914, respectively, the per cents born in other states than California among divorcees remarrying were 56.4 and 57.0 against the average for 1906 to 1915 of 54.8; among widows were 54.2 and 53.0 against the average of 51.5; and among spinster brides were 42.6 and 40.1 against the average of 38.9. Except for one minor geographic division in 1915 alone, a larger proportion each year of the divorcees than of the widows remarrying were born elsewhere in the United States than California. In Los Angeles the per cents born in other states were no less than 74.7 and 79.6 among the divorced brides in 1915 and 1914 and 65.0 and 67.9 among the widowed; for the other counties south of Tehachapi the per cents for divorcees were as great as 74.9 and 74.4, and for widows were 69.9 and 70.7.

The per cents born in other states among single, widowed, and divorced brides were much greater each year for southern California than for northern or central California. North of Tehachapi the per cents born in other states were less among brides of each class in the metropolitan area than in the rural counties, except only as to the divorced in 1915 alone. The per cents were also less for San Francisco than for the other bay counties in all cases except the widowed in 1915,

and the divorced in 1914. The per cents born elsewhere in the United States were greater, generally speaking, for Los Angeles than for the rest of southern California.

The per cents foreign born in 1915 and 1914, respectively, among the widowed were 26.5 and 26.3 as compared with the average for the last ten years of 26.2; among the single were 18.4 and 20.6 as compared with the average of 19.5; and among the divorced were only 12.8 and 13.3 as compared with the average of 13.1. Except only for the interior counties of northern California in 1915 alone, the per cent of foreign born brides was highest in every instance each year among the widowed, next highest among the single, and lowest of all among the divorced.

Without exception, the per cents foreign born were higher in all cases for San Francisco than for the other bay counties and were likewise higher among all classes each year for the metropolitan area than for the rural counties north of Tehachapi. Except as to divorcees in 1914 alone, the per cent foreign born was also higher among all classes of brides in Los Angeles than in the rest of southern California.

Summary.—Of all the single brides in 1915 and 1914, the per cents born in California were 39.0 and 39.3; the per cents born in other states were 42.6 and 40.1; and the per cents foreign born were 18.4 and 20.6. It may be noted that the per cent for native Californians exceeded that for other Americans each year from 1906 to 1912, inclusive, but that in the three years, 1913 to 1915, the proportion of spinster brides here was greater for those born in other states than for native daughters of the Golden West. Hence, the annual average per cents for 1906 to 1915, in contrast with the order of per cents for the most recent years, are as follows: California, 41.6; other states, 38.9; and foreign, 19.5. That is, California girls and other American maids each form about two-fifths of the spinster brides in this state, while only about one-fifth of the first marriage brides here were born abroad.

Of the widows remarrying in 1915 and 1914, the per cents born elsewhere in the United States than California were 54.2 and 53.0; the per cents foreign born were 26.5 and 26.3; and the per cents born in California were 19.3 and 20.7. Moreover, the annual average per cents for the ten years last past were: Other states, 51.5; foreign countries, 26.2; and California, 22.3. As compared with the per cent distributions of all white brides taken together the per cents for widows remarrying are very high indeed for those born outside California, whether in other states or foreign countries, while the per cents are relatively very low for widows among brides who were born in the Golden State.

Of all the divorcees marrying again in 1915 and 1914, the per cents born in other states were as great as 56.4 and 57.0; the per cents born in California were 30.8 and 29.7; and the per cents foreign born were only 12.8 and 13.3. Furthermore, the annual average per cents for 1906 to 1915 were: Other American, 54.8; Californian, 32.1; and foreign, only 13.1. In short, American women born in other states comprise the great bulk of the divorced brides in California, and while the native daughters form a considerable proportion of the divorcees remarrying, the foreign born constitute a very small proportion indeed.

The first marriage brides in this state are mainly California girls, or

other American maids, for the simple reason that most of the marriageable young women here were born in this or other states and reared in the glorious California climate. However, the great bulk of the widows remarrying here were born outside California, and only a comparatively small proportion were born within the Golden State, on account of the fact the very few women born in California are old enough to have been married and become widows, so that most of the widowed brides here must necessarily have come from other states or foreign countries. There is indeed a very great disparity between the proportions for the American born and the foreign born among divorcees marrying again in California, which seems due to differences between the native and foreign elements of the white population with respect to divorce or remarriage through religious or other influences.

TABLE 9.—Marriages Classified by Number in Order and

County	Total marriages	Number of marriages				Groom			
		First of both parties	First of groom only	First of bride only	Second or over of both	Single	Widowed	Divorced	Single
California	81,451	21,968	3,878	2,617	2,963	25,871	2,716	2,864	24,619
Alameda	2,864	2,008	340	236	280	2,348	259	257	2,364
Alpine	2		1		1	1		1	
Amador	35	25	4	4	2	29	3	3	29
Butte	216	165	20	12	19	185	16	15	177
Calaveras	33	28	4		1	32		1	28
Colusa	30	30	5	2	3	35	2	3	32
Contra Costa	269	191	30	23	25	221	18	30	214
Del Norte	36	27	5	1	3	32	1	3	28
El Dorado	37	29	5	2	1	34	1	2	31
Fresno	895	653	84	65	93	787	94	64	718
Glenn	52	48	3		1	51		1	48
Humboldt	305	225	44	21	14	270	17	18	247
Imperial	216	155	25	16	20	180	19	17	171
Inyo	37	19	6	4	8	25	4	8	25
Kern	444	317	65	23	39	382	31	31	340
Kings	210	164	21	8	17	185	11	14	172
Lake	28	20	3	3	2	23	2	3	23
Lassen	59	52	4	2	1	56		3	54
Los Angeles	6,981	4,793	778	675	735	5,571	770	640	5,468
Madera	98	63	12	7	11	75	8	10	70
Marin	657	391	117	66	83	568	71	78	457
Mariposa	17	12	2	2	1	14	1	2	14
Mendocino	167	131	15	14	7	146	14	7	145
Merced	139	113	10	6	10	123	12	4	119
Modoc	61	50	9	2	3	59	4	1	52
Mono	3	2	1			3			2
Monterey	177	125	22	12	18	147	13	17	137
Napa	230	152	30	20	28	182	29	19	172
Nevada	97	74	11	4	8	85	7	5	78
Orange	1,401	905	196	114	186	1,101	124	176	1,019
Placer	89	58	9	11	11	67	11	11	60
Plumas	36	26	6	2	2	32		4	28
Riverside	482	346	36	55	45	382	52	48	441
Sacramento	915	649	138	71	87	787	68	90	729
San Benito	63	43	9	6	5	52	4	7	49
San Bernardino	725	490	103	54	79	593	70	63	544
San Diego	1,353	828	203	141	181	1,031	158	161	940
San Francisco	6,817	4,907	876	526	568	5,783	430	604	5,433
San Joaquin	794	571	99	48	76	670	58	66	619
San Luis Obispo	193	143	23	13	14	166	15	12	156
San Mateo	362	223	56	41	42	279	28	55	254
Santa Barbara	283	206	31	21	25	237	22	24	227
Santa Clara	956	673	108	83	92	781	80	95	756
Santa Cruz	276	188	31	27	30	219	23	34	215
Shasta	120	84	16	10	10	100	14	6	94
Sierra	12	10			2	10	2		10
Siskiyou	177	124	29	10	14	153	11	13	131
Solano	232	159	37	19	17	196	18	18	178
Sonoma	482	346	61	30	45	407	36	39	376
Stanislaus	259	204	19	22	14	223	22	14	226
Sutter	43	32	5	4	2	37	4	2	36
Tehama	107	77	15	9	6	92	5	10	86
Trinity	21	16	2		3	18	2	1	16
Tulare	345	284	30	12	19	314	17	14	296
Tuolumne	59	41	10	5	3	51	3	5	46
Ventura	184	131	22	18	13	153	18	13	149
Yolo	115	86	11	7	11	97	4	14	88
Yuba	116	80	21	8	7	101	10	5	88

Marital Condition of Parties, with Per Cents, for Counties: 1915.

Bride		Per cent of marriages				Per cent of grooms			Per cent of brides		
Wid- owed	Di- vorced	First of both parties	First of groom only	First of bride only	Second or over of both	Single	Wid- owed	Di- vorced	Single	Wid- owed	Di- vorced
3,159	3,682	69.9	12.4	8.3	9.4	82.3	8.6	9.1	78.2	10.1	11.7
278	322	70.1	11.9	8.9	9.1	82.0	9.0	9.0	79.0	9.7	11.3
2	2	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	100.0
3	3	71.5	11.4	11.4	5.7	82.8	8.6	8.6	82.8	8.6	8.6
13	26	78.4	9.3	5.5	8.8	85.7	7.4	6.9	82.0	6.0	12.0
2	3	84.9	12.1		3.0	97.0		3.0	84.8	6.1	9.1
5	3	75.0	12.5	5.0	7.5	87.5	5.0	7.5	80.0	12.5	7.5
18	37	71.0	11.2	9.5	9.3	82.2	6.7	11.1	79.6	6.7	13.7
3	5	75.0	13.9	2.8	8.3	88.9	2.8	8.3	77.8	8.3	13.9
2	4	78.4	18.5	5.4	2.7	91.9	2.7	5.4	83.8	5.4	10.8
98	79	72.9	9.4	7.3	10.4	82.3	10.5	7.2	80.2	11.0	8.8
1	3	92.3	5.8		1.9	98.1		1.9	92.3	1.9	5.8
26	32	74.1	14.4	6.9	4.6	88.5	5.6	5.9	81.0	8.5	10.5
19	26	71.8	11.6	7.4	9.2	83.3	8.8	7.9	79.2	8.8	12.0
8	6	51.4	16.2	10.8	21.6	67.6	10.8	21.6	62.2	21.6	16.2
35	69	71.4	14.6	5.2	8.8	86.0	7.0	7.0	76.6	7.9	15.5
23	15	78.1	10.0	3.8	8.1	88.1	5.2	6.7	81.9	11.0	7.1
	5	71.4	10.7	10.7	7.2	82.1	7.2	10.7	82.1		17.9
2	3	88.1	6.8	3.4	1.7	94.9		5.1	91.5	3.4	5.1
786	728	68.7	11.1	9.7	10.5	79.8	11.0	9.2	78.3	11.3	10.4
11	12	67.8	12.9	7.5	11.8	80.6	8.6	10.8	75.3	11.8	12.9
86	114	59.5	17.8	10.1	12.6	77.3	10.8	11.9	69.6	13.1	17.3
1	2	70.5	11.8	11.8	5.9	82.3	5.9	11.8	82.3	5.9	11.8
10	12	78.4	9.0	8.4	4.2	87.4	8.4	4.2	86.8	6.0	7.2
12	8	81.3	7.2	4.3	7.2	88.5	8.6	2.9	85.6	8.6	5.8
4	8	78.1	14.1	3.1	4.7	92.2	6.2	1.6	81.3	6.2	12.5
	1	66.7	33.3			100.0			66.7		33.3
19	21	70.6	12.4	6.8	10.2	83.1	7.3	9.6	77.4	10.7	11.9
26	32	66.1	13.0	8.7	12.2	79.1	12.6	8.3	74.8	11.3	13.9
11	8	76.3	11.3	4.1	8.3	87.6	7.2	5.2	80.4	11.3	8.3
192	100	64.6	14.0	8.1	13.3	78.6	8.8	12.6	72.7	13.7	13.6
11	9	65.2	10.1	12.4	12.3	75.3	12.4	12.3	77.5	12.4	10.1
3	5	72.2	16.7	5.6	5.5	88.9		11.1	77.8	8.3	13.9
30	42	71.8	7.5	11.4	9.3	79.2	10.8	10.0	83.2	8.1	8.7
96	129	68.7	14.6	7.5	9.2	83.3	7.2	9.5	76.2	10.2	13.6
8	6	68.3	14.3	9.5	7.9	82.5	6.4	11.1	77.8	12.7	9.5
86	96	67.5	14.2	7.4	10.9	81.7	9.6	8.7	74.9	11.9	13.2
156	226	61.2	15.0	10.4	13.4	76.2	11.7	12.1	71.6	11.7	16.7
583	801	72.0	12.8	7.7	7.5	84.8	6.3	8.9	79.7	8.6	11.7
93	82	71.9	12.5	6.0	9.6	84.4	7.3	8.3	78.0	11.7	10.3
13	24	74.1	11.9	6.7	7.3	86.0	7.8	6.2	80.9	6.7	12.4
32	66	61.6	15.5	11.3	11.6	77.1	7.7	15.2	72.9	8.9	18.2
24	32	72.8	11.0	7.4	8.8	83.7	7.8	8.5	80.2	8.5	11.3
84	116	70.4	11.3	8.7	9.6	81.7	8.4	9.9	79.1	8.8	12.1
27	34	68.1	11.2	9.8	10.9	79.4	8.3	12.3	77.9	9.8	12.3
15	11	70.0	13.4	8.3	8.3	83.3	11.7	5.0	78.3	12.5	9.2
2		83.3			16.7	83.3	16.7		83.3	16.7	
16	27	70.1	16.4	5.6	7.9	86.5	6.2	7.3	75.7	9.0	15.3
26	28	68.5	16.0	8.2	7.3	84.5	7.8	7.7	76.7	11.2	12.1
48	58	71.8	12.7	6.2	9.3	84.4	7.5	8.1	78.0	10.0	12.0
15	18	78.8	7.3	8.5	5.4	86.1	8.5	5.4	87.3	5.8	6.9
3	4	74.4	11.6	9.3	4.7	86.0	9.3	4.7	83.7	7.0	9.3
10	11	72.0	11.0	8.4	5.6	86.0	4.7	9.3	80.4	9.3	10.3
3	2	76.2	9.5		11.3	85.7	9.5	4.8	76.2	14.3	9.5
25	24	82.3	8.7	3.5	5.5	91.0	4.9	4.1	85.8	7.2	7.0
5	8	69.5	16.9	8.5	5.1	86.4	5.1	8.5	78.0	8.5	13.5
26	9	71.2	11.9	9.8	7.1	83.1	9.8	7.1	81.0	14.1	4.9
3	19	74.8	9.6	6.1	9.5	81.3	3.5	12.2	80.9	2.6	16.5
12	16	69.0	18.1	6.9	6.0	87.1	8.6	4.3	75.9	10.3	13.8

TABLE 10.—Marriages Classified by Number in Order and

County	Total marriages	Number of marriage				Groom			
		First of both parties	First of groom only	First of bride only	Second or over of both	Single	Widowed	Divorced	Single
California	31,902	22,747	3,770	2,514	2,871	26,517	2,710	2,675	25,261
Alameda	2,883	2,088	349	226	270	2,387	221	275	2,264
Alpine	1	1				1			1
Amador	50	40	3	5	2	43	4	3	45
Butte	235	171	28	15	21	199	17	19	186
Calaveras	31	24	4	1	2	28	1	2	25
Colusa	51	33	5	7	6	38	5	8	40
Contra Costa	270	186	23	30	31	209	28	33	216
Del Norte	25	23	1	1		24	1		24
El Dorado	33	24	4	3	2	28	4	1	27
Fresno	986	719	106	68	93	825	100	61	787
Glenn	77	53	13	8	3	66	3	8	61
Humboldt	327	252	41	15	19	298	25	9	267
Imperial	256	196	34	13	13	230	10	16	209
Inyo	47	31	9	5	2	40	5	2	36
Kern	437	316	63	22	36	379	31	27	338
Kings	207	154	27	12	14	181	9	17	166
Lake	44	32	6	1	5	38	3	3	33
Lassen	62	46	7	6	3	53	5	4	52
Los Angeles	7,411	5,226	788	681	743	6,011	718	679	5,910
Madera	84	55	13	8	8	68	6	10	63
Marin	730	450	143	57	80	593	57	80	507
Mariposa	14	12	2			14			12
Mendocino	216	146	35	20	15	181	15	20	166
Merced	148	120	12	8	8	132	8	8	128
Modoc	75	65	5	1	4	70	2	3	66
Mono	2	1	1			2			1
Monterey	195	140	26	17	12	166	10	19	157
Napa	198	128	20	23	27	148	28	22	131
Nevada	82	67	8	4	3	75	4	3	71
Orange	1,355	835	215	119	186	1,060	155	150	964
Placer	86	61	10	6	9	71	8	7	67
Plumas	30	23	5		2	28	1	1	28
Riverside	402	282	41	41	38	323	42	37	323
Sacramento	1,164	779	179	88	118	968	83	123	887
San Benito	76	57	6	9	4	63	7	6	66
San Bernardino	749	536	91	57	65	627	75	47	568
San Diego	1,227	803	163	126	135	966	149	112	929
San Francisco	6,216	4,711	659	427	419	5,370	399	447	5,188
San Joaquin	715	508	96	47	64	604	51	60	555
San Luis Obispo	218	171	19	12	10	190	13	15	183
San Mateo	367	240	50	31	46	290	37	40	271
Santa Barbara	311	222	24	32	33	246	31	34	254
Santa Clara	1,142	810	134	98	100	944	107	91	908
Santa Cruz	272	194	31	20	27	225	29	18	214
Shasta	153	114	18	7	14	132	9	12	121
Sierra	13	10	1		2	11	2		10
Siskiyou	197	146	23	11	14	172	8	17	157
Solano	201	149	23	13	16	172	15	14	162
Sonoma	526	381	68	39	38	449	40	37	420
Stanislaus	268	208	16	22	22	221	22	23	200
Sutter	40	33	1	4	2	34	3	3	37
Tehama	104	70	17	6	11	87	8	9	76
Trinity	13	8	5			13			8
Tulare	382	307	35	17	23	342	25	15	324
Tuolumne	54	33	12	1	8	45	5	4	34
Ventura	193	143	21	9	20	161	20	9	152
Yolo	125	89	19	6	11	108	9	8	95
Yuba	96	75	9	6	6	84	7	5	81

Marital Condition of Parties, with Per Cents, for Counties: 1914.

Bride		Per cent of marriages				Per cent of grooms			Per cent of brides		
Wid- owed	Di- vorced	First of both parties	First of groom only	First of bride only	Second or over of both	Single	Wid- owed	Di- vorced	Single	Wid- owed	Di- vorced
3,179	3,462	71.3	11.8	7.9	9.0	83.1	8.5	8.4	79.2	10.0	10.8
277	342	70.7	12.1	7.8	9.4	82.8	7.7	9.5	78.5	9.6	11.9
		100.0				100.0			100.0		
4	1	80.0	6.0	10.0	4.0	86.0	8.0	6.0	90.0	8.0	2.0
24	25	72.8	11.9	6.4	8.9	84.7	7.2	8.1	79.2	10.2	10.6
3	3	77.4	12.9	3.2	6.5	90.3	8.2	6.5	80.6	9.7	9.7
3	8	61.7	9.8	12.7	11.8	74.5	9.8	15.7	78.4	5.9	15.7
26	28	68.9	8.5	11.1	11.5	77.4	10.4	12.2	80.0	9.6	10.4
1		92.0	4.0	4.0		96.0	4.0		96.0	4.0	
3	3	72.7	12.1	9.1	6.1	84.9	12.1	3.0	81.8	9.1	9.1
111	88	72.9	10.8	6.9	9.4	83.7	10.1	6.2	79.8	11.3	8.9
7	9	68.8	16.9	10.4	3.9	85.7	3.9	10.4	79.2	9.1	11.7
30	30	77.1	12.5	4.6	5.8	89.6	7.6	2.8	81.6	9.2	9.2
21	26	76.5	13.3	5.1	5.1	89.8	3.9	6.3	81.6	8.2	10.2
7	4	66.0	19.1	10.6	4.8	85.1	10.6	4.3	76.6	14.9	8.5
44	55	72.3	14.4	5.0	8.3	86.7	7.1	6.2	77.3	10.1	12.6
17	24	74.4	13.0	5.8	6.8	87.4	4.4	8.2	80.2	8.2	11.6
7	4	72.7	13.6	2.3	11.4	86.4	6.8	6.8	75.0	15.9	9.1
3	7	74.2	11.3	9.7	4.8	85.5	8.1	6.4	83.9	4.8	11.3
801	730	70.2	10.6	9.2	10.0	80.8	10.1	9.1	79.4	10.8	9.8
13	8	65.5	15.5	9.5	9.5	81.0	7.1	11.9	75.0	15.5	9.5
82	141	61.6	19.6	7.8	11.0	81.2	7.8	11.0	69.5	11.2	19.3
2		86.7	14.3			100.0			85.7	14.3	
23	27	67.6	16.2	9.3	6.9	83.8	6.9	9.3	76.9	10.6	12.5
9	11	81.1	8.1	5.4	5.4	89.2	5.4	5.4	86.5	6.1	7.4
5	4	86.7	6.7	1.3	5.3	93.3	2.7	4.0	88.0	6.7	5.3
	1	50.0	50.0			100.0			50.0		50.0
17	21	71.8	13.3	8.7	6.2	85.1	5.1	9.8	80.5	8.7	10.8
22	25	64.7	10.1	11.6	13.6	74.8	14.1	11.1	70.3	11.1	12.6
2	9	81.7	9.7	4.9	3.7	91.5	4.9	3.6	86.6	2.4	11.0
179	222	61.6	15.9	8.8	13.7	77.5	11.4	11.1	70.4	13.2	16.4
5	14	70.9	11.6	7.0	10.5	82.6	9.3	8.1	77.9	5.8	16.3
4	3	76.7	16.7		6.6	93.4	3.3	3.3	76.7	13.3	10.0
44	35	70.1	10.2	10.2	9.5	80.4	10.4	9.2	80.4	10.9	8.7
137	160	66.9	15.4	7.6	10.1	82.3	7.1	10.6	74.5	11.8	13.7
7	3	75.0	7.9	11.8	5.3	82.9	9.2	7.9	86.8	9.2	4.0
87	60	71.6	12.1	7.6	8.7	83.7	10.0	6.8	79.2	11.6	9.2
171	127	65.4	13.3	10.3	11.0	78.7	12.2	9.1	75.7	13.9	10.1
476	602	75.8	10.6	6.9	6.7	86.4	6.4	7.2	82.7	7.6	9.7
83	77	71.0	13.4	6.6	9.0	84.5	7.1	8.4	77.6	11.6	10.8
15	20	73.5	8.7	5.5	7.3	87.1	6.0	6.9	83.9	6.9	9.2
85	61	65.4	13.6	8.5	12.5	79.0	10.1	10.9	73.9	9.5	16.6
27	30	71.4	7.7	10.8	10.6	79.1	10.0	10.9	81.7	8.7	9.6
105	129	70.9	11.7	8.0	8.8	82.6	9.4	8.0	79.5	9.2	11.3
27	31	71.3	11.4	7.4	9.9	82.7	10.7	6.6	78.7	9.9	11.4
11	21	74.5	11.8	4.6	9.1	86.3	5.9	7.8	79.1	7.2	13.7
2	1	76.9	7.7		15.4	81.6	15.4		76.9	15.4	7.7
14	26	74.1	13.2	5.6	7.1	87.3	4.1	8.6	79.7	7.1	13.2
15	24	74.1	11.4	6.5	8.0	85.6	7.4	7.0	80.6	7.5	11.9
49	57	72.5	12.9	7.4	7.2	83.4	7.6	7.0	79.9	9.3	10.8
24	14	77.6	6.0	8.2	8.2	83.6	8.2	8.2	85.8	9.0	5.2
2	1	82.5	2.5	10.0	5.0	85.0	7.5	7.5	92.5	5.0	2.5
12	16	67.3	16.3	5.8	10.6	83.6	7.7	8.7	73.1	11.5	15.4
1	4	61.5	38.5			100.0			61.5	7.7	30.8
20	20	80.4	9.2	4.4	6.0	89.5	6.6	3.9	84.8	7.6	7.6
18	7	61.1	22.2	1.9	14.8	83.3	9.3	7.4	62.9	24.1	13.0
23	18	74.1	10.9	4.7	10.3	85.0	10.3	4.7	78.8	11.9	9.3
15	15	71.2	15.2	4.8	8.8	86.4	7.2	6.4	76.0	12.0	12.0
3	12	78.1	9.4	6.3	6.2	87.5	7.3	5.2	84.4	3.1	12.5

TABLE 11.—Brides Classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1915.

Geographic division, and race or nativity of bride	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
The State	31,451	24,610	3,159	3,682	78.2	10.1	11.7
White	30,011	23,341	3,051	3,619	77.8	10.2	12.0
Born in California	10,900	9,107	589	1,113	84.3	5.4	10.3
Born in other states	13,628	9,932	1,655	2,041	72.9	12.1	15.0
Foreign born	5,574	4,302	807	465	77.2	14.5	8.3
Non-Caucasian	1,440	1,269	108	63	88.1	7.5	4.4
Northern California	2,497	1,993	224	280	79.8	9.0	11.2
White	2,444	1,945	221	278	79.6	9.0	11.4
Born in California	1,411	1,206	79	126	85.5	5.6	8.9
Born in other states	715	508	90	117	71.0	12.6	16.4
Foreign born	318	231	52	35	72.6	16.4	11.0
Non-Caucasian	53	48	3	2	90.6	5.6	3.8
Coast counties	1,269	1,007	116	146	79.4	9.1	11.5
White	1,237	975	116	146	78.8	9.4	11.8
Born in California	724	619	36	69	85.5	5.0	9.5
Born in other states	306	204	45	57	66.7	14.7	18.6
Foreign born	207	152	35	20	73.4	16.9	9.7
Non-Caucasian	32	32			100.0		
Interior counties	1,228	986	108	134	80.3	8.8	10.9
White	1,207	970	105	132	80.4	8.7	10.9
Born in California	687	587	43	57	85.4	6.3	8.3
Born in other states	409	304	45	60	74.3	11.0	14.7
Foreign born	111	79	17	15	71.2	15.3	13.5
Non-Caucasian	21	16	3	2	76.2	14.3	9.5
Central California	17,328	13,669	1,906	2,053	78.9	9.3	11.8
White	16,234	12,652	1,554	2,028	77.9	9.6	12.5
Born in California	7,277	6,087	397	793	83.6	5.5	10.9
Born in other states	5,533	3,882	709	942	70.2	12.6	17.0
Foreign born	3,424	2,683	448	298	78.3	13.1	8.6
Non-Caucasian	1,094	1,017	52	25	93.0	4.7	2.3
San Francisco	6,817	5,423	583	801	79.7	8.6	11.7
White	5,889	4,534	566	789	77.0	9.6	13.4
Born in California	2,443	2,015	132	296	82.5	5.4	12.1
Born in other states	1,818	1,202	257	359	66.1	14.1	19.8
Foreign born	1,628	1,317	177	134	80.9	10.9	8.3
Non-Caucasian	928	899	17	12	96.9	1.8	1.3
Other bay counties	4,152	3,199	414	539	77.0	10.0	13.0
White	4,076	3,146	396	534	77.2	9.7	13.1
Born in California	1,935	1,615	113	207	83.5	5.8	10.7
Born in other states	1,350	930	168	252	68.9	12.4	18.7
Foreign born	791	601	115	75	76.0	14.5	9.5
Non-Caucasian	76	53	18	5	69.7	23.7	6.6
Coast counties	1,665	1,313	151	201	78.8	9.1	12.1
White	1,654	1,307	148	199	79.0	9.0	12.0
Born in California	867	744	33	90	85.8	3.3	10.4
Born in other states	531	336	79	56	66.9	14.9	16.2
Foreign born	256	197	36	23	76.9	14.1	9.0
Non-Caucasian	11	6	3	2	54.5	27.3	18.2
Interior counties	4,694	3,724	458	512	79.3	9.8	10.9
White	4,615	3,665	444	505	79.4	9.6	11.0
Born in California	2,032	1,713	119	200	84.3	5.9	9.8
Born in other states	1,834	1,384	205	245	75.5	11.2	13.3
Foreign born	749	568	120	61	75.8	16.0	8.3
Non-Caucasian	79	59	14	6	74.7	17.7	7.6

TABLE 11.—Brides Classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Division: 1915—Concluded.

Geographic division, and race or nativity of bride	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
Southern California	11,626	8,948	1,329	1,349	77.0	11.4	11.6
White	11,333	8,744	1,276	1,313	77.2	11.2	11.6
Born in California	2,121	1,814	113	194	85.5	5.3	9.2
Born in other states	7,390	5,542	856	962	75.1	11.6	13.3
Foreign born	1,832	1,388	307	137	75.8	16.7	7.5
Non-Caucasian	293	204	53	36	69.6	18.1	12.3
Los Angeles	6,981	5,468	785	728	78.3	11.3	10.4
White	6,777	5,332	741	704	78.7	10.9	10.4
Born in California	1,119	971	54	94	86.8	4.8	8.4
Born in other states	4,483	3,475	482	526	77.5	10.8	11.7
Foreign born	1,175	886	205	84	75.4	17.4	7.2
Non-Caucasian	204	136	44	24	66.7	21.6	11.7
Other counties	4,645	3,480	544	621	74.9	11.7	13.4
White	4,550	3,412	535	609	74.9	11.7	13.4
Born in California	1,002	843	59	100	84.1	5.9	10.0
Born in other states	2,897	2,067	374	456	71.4	12.9	15.7
Foreign born	637	502	102	53	76.4	15.5	8.1
Non-Caucasian	89	68	9	12	76.4	10.1	13.5
Northern and Central California	19,825	15,662	1,830	2,333	79.0	9.2	11.8
White	18,678	14,597	1,775	2,306	78.2	9.5	12.3
Born in California	8,688	7,298	476	919	83.9	5.5	10.6
Born in other states	6,248	4,390	799	1,059	70.3	12.8	16.9
Foreign born	3,742	2,914	500	328	77.9	13.3	8.8
Non-Caucasian	1,147	1,065	55	27	92.9	4.8	2.3
Coast counties	13,903	10,962	1,264	1,687	78.8	9.1	12.1
White	12,856	9,962	1,226	1,668	77.5	9.5	13.0
Born in California	5,900	4,993	314	662	83.6	5.3	11.1
Born in other states	4,005	2,702	549	754	67.5	13.7	18.8
Foreign born	2,882	2,267	363	252	78.7	12.6	8.7
Non-Caucasian	1,047	990	38	19	94.6	3.6	1.8
Interior counties	5,922	4,710	566	646	79.5	9.6	10.9
White	5,822	4,635	549	638	79.6	9.4	11.0
Born in California	2,719	2,300	162	257	84.6	6.0	9.4
Born in other states	2,243	1,688	250	305	75.3	11.1	13.6
Foreign born	860	617	137	76	75.3	15.9	8.8
Non-Caucasian	100	75	17	8	75.0	17.0	8.0
Metropolitan area	10,969	8,632	997	1,340	78.7	9.1	12.2
White	9,965	7,680	962	1,323	77.1	9.6	13.3
Born in California	4,378	3,630	215	503	82.9	5.6	11.5
Born in other states	3,168	2,132	425	611	67.3	13.4	19.3
Foreign born	2,419	1,918	292	209	79.3	12.1	8.6
Non-Caucasian	1,004	952	35	17	94.8	3.5	1.7
Rural counties	8,856	7,030	833	993	79.4	9.4	11.2
White	8,713	6,917	813	983	79.4	9.3	11.3
Born in California	4,310	3,663	231	416	85.0	5.4	9.6
Born in other states	3,080	2,238	374	448	73.3	12.1	14.6
Foreign born	1,323	996	208	119	75.3	15.7	9.0
Non-Caucasian	143	113	20	10	79.0	14.0	7.0

TABLE 12.—Brides Classified by Race, Nativity and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1914.

Geographic division and race or nativity of bride	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
The State	31,902	25,361	3,179	3,462	79.2	10.0	10.8
White	30,445	24,023	2,043	2,379	78.9	10.0	11.1
Born in California	11,073	9,430	631	1,003	85.2	5.7	9.1
Born in other states	12,132	9,644	1,512	1,927	73.2	12.2	14.6
Foreign born	6,150	4,940	800	449	79.8	12.9	7.3
Non-Caucasian	1,457	1,238	136	83	85.0	9.3	5.7
Northern California	2,650	2,117	230	303	79.9	8.7	11.4
White	2,568	2,063	224	301	79.7	8.7	11.6
Born in California	1,440	1,213	88	129	84.2	6.1	9.7
Born in other states	794	509	85	139	71.7	10.8	17.5
Foreign born	354	281	50	23	79.4	14.1	6.5
Non-Caucasian	62	54	6	2	87.1	9.7	3.2
Coast counties	1,349	1,069	133	147	79.2	9.9	10.9
White	1,330	1,053	131	146	79.2	9.8	11.0
Born in California	745	624	53	68	83.8	7.1	9.1
Born in other states	347	237	46	64	68.3	13.3	18.4
Foreign born	238	192	32	14	80.7	12.4	5.9
Non-Caucasian	19	16	2	1	84.2	10.5	5.3
Interior counties	1,301	1,048	97	156	80.5	7.5	12.0
White	1,278	1,010	93	155	80.3	7.4	12.3
Born in California	695	589	35	71	81.8	5.0	10.2
Born in other states	447	332	40	75	74.3	8.9	16.8
Foreign born	116	89	18	9	76.7	15.5	7.8
Non-Caucasian	43	38	4	1	88.4	9.3	2.3
Central California	17,318	13,820	1,566	1,902	79.8	9.2	11.0
White	16,242	12,845	1,534	1,863	79.1	9.4	11.5
Born in California	7,430	6,282	440	708	84.6	5.9	9.5
Born in other states	5,015	3,528	639	848	70.4	12.7	16.9
Foreign born	3,797	3,035	455	307	79.9	12.0	8.1
Non-Caucasian	1,076	975	62	39	90.6	5.8	3.6
San Francisco	6,216	5,138	476	602	82.7	7.6	9.7
White	5,332	4,282	457	593	80.3	8.6	11.1
Born in California	2,314	1,977	135	202	85.5	5.8	8.7
Born in other states	1,324	904	165	255	68.3	12.5	19.2
Foreign born	1,694	1,401	157	136	82.7	9.3	8.0
Non-Caucasian	884	856	19	9	96.8	2.2	1.0
Other bay counties	4,250	3,258	420	572	76.7	9.9	13.4
White	4,168	3,207	404	557	76.9	9.7	13.4
Born in California	2,010	1,651	121	238	82.2	6.0	11.8
Born in other states	1,288	883	170	235	68.6	13.2	18.2
Foreign born	870	673	113	84	77.4	13.0	9.6
Non-Caucasian	82	51	16	15	62.2	19.5	18.3
Coast counties	1,903	1,528	171	204	80.3	9.0	10.7
White	1,888	1,518	169	201	80.4	9.0	10.6
Born in California	985	803	44	78	87.6	4.5	7.9
Born in other states	538	379	68	91	70.5	12.6	16.9
Foreign born	365	276	57	32	75.6	15.6	8.8
Non-Caucasian	15	10	2	3	66.7	13.3	20.0
Interior counties	4,949	3,896	529	524	78.7	10.7	10.6
White	4,854	3,838	504	512	79.1	10.4	10.5
Born in California	2,121	1,791	140	190	84.4	6.0	9.0
Born in other states	1,865	1,362	236	267	73.0	12.7	14.3
Foreign born	868	685	128	55	78.9	14.8	6.3
Non-Caucasian	95	58	25	12	61.1	26.3	12.6

TABLE 12.—Brides Classified by Race, Nativity and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1914—Concluded.

Geographic division, and race or nativity of bride	Brides				Per cent		
	Total	Single	Widowed	Divorced	Single	Widowed	Divorced
Southern California	11,934	9,324	1,353	1,257	78.2	11.8	10.5
White	11,615	9,115	1,285	1,215	78.4	11.1	10.5
Born in California	2,208	1,944	108	156	88.2	4.7	7.1
Born in other states	7,374	5,547	887	940	75.2	12.0	12.8
Foreign born	2,088	1,624	295	119	79.7	14.5	5.8
Non-Caucasian	319	209	68	42	65.5	21.3	13.2
Los Angeles	7,441	5,910	801	730	79.4	10.8	9.8
White	7,211	5,762	753	696	79.9	10.4	9.7
Born in California	1,251	1,112	61	78	88.9	4.9	6.2
Born in other states	4,618	3,553	511	554	76.9	11.1	12.0
Foreign born	1,342	1,097	181	64	81.7	13.5	4.8
Non-Caucasian	230	148	48	34	64.3	20.9	14.8
Other counties	4,493	3,414	552	527	76.0	12.3	11.7
White	4,404	3,353	532	519	76.1	12.1	11.8
Born in California	952	832	42	78	87.4	4.4	8.2
Born in other states	2,750	1,994	376	386	72.4	13.6	14.0
Foreign born	696	527	114	55	75.7	16.4	7.9
Non-Caucasian	89	61	20	8	68.5	22.5	9.0
Northern and Central California ..	19,968	15,937	1,826	2,205	79.8	9.2	11.0
White	18,830	14,908	1,758	2,164	79.2	9.3	11.5
Born in California	8,870	7,495	528	847	84.5	6.0	9.5
Born in other states	5,809	4,097	725	987	70.5	12.5	17.0
Foreign born	4,151	3,316	505	330	79.9	12.2	7.9
Non-Caucasian	1,138	1,029	68	41	90.4	6.0	3.6
Coast counties	13,718	10,993	1,200	1,525	80.1	8.8	11.1
White	12,718	10,060	1,161	1,497	79.1	9.1	11.8
Born in California	6,064	5,115	553	586	84.5	5.8	9.7
Born in other states	3,197	2,403	449	645	68.7	12.8	18.5
Foreign born	3,167	2,512	339	296	80.3	11.3	8.4
Non-Caucasian	1,000	933	39	28	93.3	3.9	2.8
Interior counties	6,250	4,944	626	680	79.1	10.0	10.9
White	6,112	4,818	597	667	79.3	9.8	10.9
Born in California	2,816	2,380	175	261	84.5	6.2	9.3
Born in other states	2,312	1,694	276	342	73.3	11.9	14.8
Foreign born	984	774	116	64	78.7	14.8	6.5
Non-Caucasian	138	96	29	13	69.6	21.0	9.4
Metropolitan area	10,466	8,396	896	1,174	80.2	8.6	11.2
White	9,500	7,489	861	1,150	78.8	9.1	12.1
Born in California	4,324	3,628	256	440	83.9	5.9	10.2
Born in other states	2,612	1,787	335	490	68.4	12.8	18.8
Foreign born	2,564	2,074	270	220	80.9	10.5	8.6
Non-Caucasian	966	907	35	24	93.9	3.6	2.5
Rural counties	9,502	7,541	930	1,031	79.4	9.8	10.8
White	9,330	7,419	897	1,014	79.5	9.6	10.9
Born in California	4,546	3,967	272	397	85.1	6.0	8.9
Born in other states	3,197	2,310	390	497	72.3	12.2	15.5
Foreign born	1,587	1,212	215	110	78.3	14.8	6.9
Non-Caucasian	172	122	33	17	70.9	19.2	9.9

TABLE 13.—White Brides Classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1915.

Geographic Division and Marital Condition of Bride	White brides				Per cent		
	Total	Born in Calif- ornia	Born in other states	Foreign born	Born in Calif- ornia	Born in other states	Foreign born
The State	30,011	10,800	12,628	5,574	36.0	45.4	18.6
Single	22,341	9,107	9,982	4,302	39.0	42.6	18.4
Widowed	3,051	589	1,655	807	19.3	54.2	26.5
Divorced	3,619	1,113	2,041	465	30.8	56.4	12.8
Northern California	2,444	1,411	715	318	57.7	29.3	13.0
Single	1,945	1,206	508	231	62.0	26.1	11.9
Widowed	221	79	90	52	35.8	40.7	23.5
Divorced	278	126	117	35	45.3	42.1	12.6
Coast counties	1,237	724	306	207	58.5	21.8	16.7
Single	975	619	204	152	63.5	20.9	15.6
Widowed	116	36	45	35	31.0	38.8	30.2
Divorced	146	69	57	20	47.3	39.0	13.7
Interior counties	1,207	687	409	111	56.9	33.9	9.2
Single	970	587	304	79	60.5	31.3	8.2
Widowed	105	43	45	17	40.9	42.9	16.2
Divorced	132	57	60	15	43.2	45.4	11.4
Central California	16,234	7,277	5,533	3,424	44.8	34.1	21.1
Single	12,652	6,087	3,882	2,683	48.1	30.7	21.2
Widowed	1,554	397	709	448	25.6	45.6	28.8
Divorced	2,028	793	942	298	39.1	46.5	14.4
San Francisco	5,889	2,443	1,818	1,628	41.5	30.9	27.6
Single	4,534	2,015	1,202	1,317	44.4	28.5	29.1
Widowed	506	132	257	177	23.3	45.4	31.3
Divorced	789	296	359	134	37.5	45.5	17.0
Other bay counties	4,076	1,935	1,350	791	47.5	33.1	19.4
Single	3,146	1,615	930	601	51.3	29.6	19.1
Widowed	396	113	168	115	28.5	42.4	29.1
Divorced	534	207	252	75	38.8	47.2	14.0
Coast counties	1,654	867	531	256	52.4	32.1	15.5
Single	1,307	744	366	197	56.9	28.0	15.1
Widowed	148	33	79	36	22.3	53.4	24.3
Divorced	199	90	86	23	45.3	43.2	11.6
Interior counties	4,615	2,082	1,834	749	44.0	39.8	16.2
Single	3,665	1,713	1,384	568	46.7	37.8	15.5
Widowed	444	119	205	120	26.8	46.3	27.0
Divorced	506	200	245	61	39.5	48.4	12.1
Southern California	11,333	2,121	7,380	1,832	18.7	65.1	16.2
Single	8,744	1,814	5,542	1,398	20.7	63.4	15.9
Widowed	1,276	113	856	307	8.8	67.1	24.1
Divorced	1,313	194	982	137	14.8	74.8	10.4
Los Angeles	6,777	1,119	4,483	1,175	16.5	66.2	17.3
Single	5,332	971	3,475	886	18.2	65.2	16.6
Widowed	741	54	482	205	7.3	65.0	27.7
Divorced	704	94	526	84	13.4	74.7	11.9
Other counties	4,556	1,002	2,897	657	22.0	63.6	14.4
Single	3,412	843	2,067	502	24.7	60.6	14.7
Widowed	535	59	374	102	11.0	69.9	19.1
Divorced	609	100	456	53	16.4	74.9	8.7
Northern and Central California	18,678	8,688	6,248	3,742	46.5	33.5	20.0
Single	14,597	7,293	4,390	2,914	49.9	30.1	20.0
Widowed	1,775	476	799	500	26.8	45.0	28.2
Divorced	2,306	919	1,050	328	39.9	45.9	14.2
Coast counties	12,856	5,909	4,005	2,882	46.4	31.2	22.4
Single	9,962	4,993	2,702	2,367	50.1	27.1	22.8
Widowed	1,226	314	649	363	25.6	44.8	29.6
Divorced	1,668	662	754	252	39.7	45.2	15.1
Interior counties	5,822	2,719	2,243	860	46.7	38.5	14.8
Single	4,635	2,300	1,688	647	49.6	36.4	14.0
Widowed	549	162	250	137	29.5	45.5	25.0
Divorced	638	257	305	76	40.3	47.8	11.9
Metropolitan area	9,965	4,378	3,168	2,419	43.9	31.8	24.3
Single	7,680	3,630	2,132	1,918	47.3	27.7	25.0
Widowed	962	245	425	292	25.5	44.2	30.3
Divorced	1,323	503	611	209	38.0	46.2	15.8
Rural counties	8,713	4,310	3,080	1,323	49.5	35.3	15.2
Single	6,917	3,663	2,238	996	53.0	32.6	14.4
Widowed	813	231	374	208	28.4	46.0	25.6
Divorced	983	416	448	119	42.3	45.6	12.1

TABLE 14.—White Brides Classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1914.

Geographic division, and marital condition of bride	White brides				Per cent		
	Total	Born in California	Born in other states	Foreign born	Born in California	Born in other states	Foreign born
The State	20,445	11,073	13,188	6,189	35.4	43.8	20.3
Single	24,023	9,429	9,644	4,940	39.3	40.1	20.6
Widowed	3,043	631	1,612	800	20.7	53.0	26.3
Divorced	3,379	1,008	1,927	449	29.7	57.0	13.3
Northern California	2,588	1,440	794	354	55.6	30.7	13.7
Single	2,063	1,213	569	281	58.8	27.6	13.6
Widowed	224	88	86	50	39.3	38.4	22.3
Divorced	301	139	139	23	46.2	46.2	7.6
Coast counties	1,330	745	347	238	56.0	26.1	17.9
Single	1,053	624	237	192	59.3	22.5	18.2
Widowed	181	53	46	32	40.5	35.1	24.4
Divorced	146	68	64	14	46.6	43.8	9.6
Interior counties	1,258	695	447	116	55.3	35.5	9.2
Single	1,010	599	332	89	58.3	32.9	8.8
Widowed	93	35	40	18	37.6	43.0	19.4
Divorced	155	71	75	9	45.8	48.4	5.8
Central California	16,242	7,430	5,015	3,797	45.7	30.9	23.4
Single	12,845	6,282	3,528	3,035	48.9	27.5	23.6
Widowed	1,534	440	639	455	28.7	41.6	29.7
Divorced	1,863	708	848	307	38.0	45.5	16.5
San Francisco	5,332	2,314	1,324	1,694	43.4	24.8	31.8
Single	4,292	1,977	904	1,401	46.2	21.1	32.7
Widowed	457	135	165	157	29.5	36.1	34.4
Divorced	583	202	255	136	34.1	43.0	22.9
Other bay counties	4,168	2,010	1,288	870	48.2	30.9	20.9
Single	3,207	1,651	883	673	51.5	27.5	21.0
Widowed	404	121	170	113	29.9	42.1	28.0
Divorced	557	238	235	81	42.7	42.2	15.1
Coast counties	1,888	965	538	365	52.2	28.5	19.3
Single	1,518	863	379	276	56.8	25.0	18.2
Widowed	169	44	68	57	26.0	40.3	33.7
Divorced	201	78	91	32	38.8	45.3	15.9
Interior counties	4,854	2,121	1,865	868	43.7	38.4	17.9
Single	3,838	1,791	1,362	685	46.7	35.5	17.8
Widowed	504	140	236	123	27.8	46.8	25.4
Divorced	512	190	267	55	37.1	52.2	10.7
Southern California	11,615	2,203	7,374	2,038	19.0	63.5	17.5
Single	9,115	1,944	5,547	1,624	21.3	60.9	17.8
Widowed	1,285	103	887	295	8.0	69.0	23.0
Divorced	1,215	156	940	119	12.8	77.4	9.8
Los Angeles	7,211	1,251	4,618	1,342	17.4	64.0	18.6
Single	5,762	1,112	3,553	1,097	19.3	61.7	19.0
Widowed	753	61	511	181	8.1	67.9	24.0
Divorced	696	78	554	64	11.2	79.6	9.2
Other counties	4,404	952	2,756	696	21.6	62.6	15.8
Single	3,353	832	1,994	527	24.8	59.5	15.7
Widowed	532	42	376	114	7.9	70.7	21.4
Divorced	519	78	386	55	15.0	74.4	10.6
Northern and Central California	18,830	8,870	5,809	4,151	47.1	30.9	22.0
Single	14,908	7,495	4,097	3,316	50.3	27.5	22.2
Widowed	1,758	523	725	505	30.0	41.3	28.7
Divorced	2,164	847	987	330	39.1	45.6	15.3
Coast counties	12,718	6,054	3,497	3,167	47.6	27.5	24.9
Single	10,060	5,115	2,403	2,542	50.8	23.9	25.3
Widowed	1,161	333	449	359	30.4	38.7	30.9
Divorced	1,497	586	645	266	39.1	43.1	17.8
Interior counties	6,112	2,816	2,312	984	46.1	37.8	16.1
Single	4,848	2,380	1,694	774	49.1	34.9	16.0
Widowed	697	175	276	146	29.3	46.2	24.5
Divorced	567	261	342	64	39.1	51.3	9.6
Metropolitan area	9,500	4,324	2,612	2,564	45.5	27.5	27.0
Single	7,189	3,628	1,787	2,074	48.4	23.9	27.7
Widowed	861	256	335	270	29.7	38.9	31.4
Divorced	1,150	440	490	220	38.3	42.6	19.1
Rural counties	9,330	4,546	3,197	1,587	48.7	34.3	17.0
Single	7,419	3,967	2,310	1,212	52.1	31.1	16.8
Widowed	897	272	390	235	30.3	43.5	26.2
Divorced	1,014	407	497	110	40.1	49.0	10.9

TABLE 15—Brides Classified by Race and Nativity, with Per Cent

County	Total brides, 1915						Total
	Total	White			Non-Caucasian		
		Total	Born in California	Born in other states		Foreign born	
California	31,451	30,011	10,809	13,628	5,574	1,440	31,992
Alameda	2,864	2,794	1,290	915	580	70	2,883
Alpine	2	2	1		1		1
Amador	35	35	19	7	9		50
Butte	216	216	105	94	17		233
Calaveras	33	33	25	5	3		31
Colusa	40	40	26	7	7		51
Contra Costa	269	266	132	81	53	3	270
Del Norte	36	27	11	13	3	9	25
El Dorado	37	36	26	9	1	1	33
Fresno	895	883	311	398	174	12	906
Glenn	52	52	27	20	5		77
Humboldt	305	297	108	56	73	8	297
Imperial	216	202	25	143	34	14	256
Inyo	37	33	16	16	1	4	47
Kern	444	435	126	257	52	9	457
Kings	210	204	91	56	57	6	207
Lake	23	24	17	7			44
Lassen	59	55	29	18	8	4	62
Los Angeles	6,961	6,777	1,119	4,483	1,175	204	7,441
Madera	93	92	35	37	20	1	84
Marin	657	656	336	232	88	1	730
Mariposa	17	14	11	3		3	14
Mendocino	167	161	108	28	25	6	216
Merced	139	139	61	48	30		148
Modoc	64	64	44	19	1		75
Mono	3	3	2	1			2
Monterey	177	174	115	45	14	3	195
Napa	230	230	141	57	32		198
Nevada	97	95	65	19	11	2	82
Orange	1,401	1,388	259	941	188	13	1,553
Placer	89	89	44	33	12		86
Plumas	96	35	22	13		1	30
Riverside	482	470	108	302	60	12	402
Sacramento	945	924	449	318	157	21	1,161
San Benito	63	63	39	16	8		76
San Bernardino	726	708	149	457	102	18	749
San Diego	1,353	1,327	278	881	188	26	1,227
San Francisco	6,817	5,889	2,443	1,818	1,628	928	6,216
San Joaquin	794	787	398	268	121	7	715
San Luis Obispo	193	193	124	49	20		218
San Mateo	362	360	177	122	61	2	367
Santa Barbara	283	277	123	109	45	6	311
Santa Clara	956	950	445	332	173	6	1,112
Santa Cruz	276	274	144	89	41	2	272
Shasta	120	117	70	34	13	3	133
Sierra	12	12	9	3			13
Siskiyou	177	170	82	71	17	7	197
Solano	232	224	135	61	28	8	201
Sonoma	482	480	267	141	72	2	536
Stanislaus	259	257	94	120	43	2	268
Sutter	43	43	31	10	2		40
Tehama	107	107	65	40	2		104
Trinity	21	18	12	4	2	3	13
Tulare	345	342	122	184	36	3	322
Tuolumne	59	59	44	10	5		54
Ventura	184	184	80	64	40		193
Yolo	115	113	66	36	11	2	125
Yuba	116	112	68	28	16	4	96

Distribution of White Brides by Nativity, for Counties: 1915 and 1914.

Total brides, 1914					Per cent of white brides					
White					Born in California		Born in other states		Foreign born	
Total	Born in California	Born in other states	Foreign born	Non-California	1915	1914	1915	1914	1915	1914
30,445	11,073	13,183	6,189	1,457	36.0	38.4	45.4	48.3	18.6	20.3
2,810	1,309	878	623	73	46.2	46.6	32.7	31.2	21.1	22.2
1	1				50.0	100.0			50.0	
49	29	6	14	1	54.3	59.2	20.0	12.2	25.7	28.6
228	113	92	23	7	48.6	49.6	43.5	40.3	7.9	10.1
31	24	3	4		75.8	77.4	15.1	9.7	9.1	12.9
48	31	14	3	3	65.0	64.6	17.5	29.2	17.5	6.2
269	120	88	61	1	49.6	44.6	30.5	32.7	19.9	22.7
24	11	10	3	1	40.7	45.8	48.2	41.7	11.1	12.5
33	23	7	3		72.2	69.7	25.0	21.2	2.8	9.1
971	343	394	234	15	35.2	35.3	45.1	40.6	19.7	24.1
76	42	30	4		51.9	55.3	38.5	39.5	9.6	5.2
318	165	72	81	9	56.6	51.9	18.8	22.6	24.6	25.5
240	37	169	34	16	12.4	15.4	70.8	70.4	16.8	14.2
43	18	20	5	4	48.5	41.9	48.5	46.5	3.0	11.6
430	128	245	57	7	29.0	29.8	59.1	57.0	11.9	13.2
205	81	74	50	2	44.6	39.5	27.5	36.1	27.9	24.4
43	25	15	3	1	70.8	58.1	29.2	34.9		7.0
62	33	28	1		52.7	53.2	32.7	45.2	14.6	1.6
7,211	1,251	4,618	1,342	230	16.5	17.4	66.2	64.0	17.3	18.6
80	29	39	12	4	38.1	36.3	40.2	48.7	21.7	15.0
728	397	215	146	2	51.2	54.6	35.4	29.5	13.4	15.9
14	8	5	1		78.6	57.2	21.4	35.7		7.1
210	124	42	44	6	67.1	59.0	17.4	20.0	15.5	21.0
147	72	44	31	1	43.9	49.0	34.5	29.9	21.6	21.1
70	47	21	2	5	68.7	67.1	29.7	30.0	1.6	2.9
2	1		1		66.7	50.0	33.3			50.0
194	117	48	29	1	66.1	60.3	25.9	24.7	8.0	15.0
197	113	66	18	1	61.3	57.4	24.8	33.5	13.9	9.1
82	61	11	10		68.4	74.4	20.0	13.4	11.6	12.2
1,342	264	913	165	13	18.7	19.7	67.8	68.0	13.5	12.3
84	45	30	9	2	49.4	53.6	37.1	35.7	13.5	10.7
30	18	12			62.9	60.0	37.1	40.0		
394	91	242	61	8	23.0	23.1	64.2	61.4	12.8	15.5
1,141	578	380	183	23	48.6	50.7	34.4	33.3	17.0	16.0
76	53	13	10		61.9	69.7	25.4	17.1	12.7	13.2
731	142	450	139	18	21.0	19.4	64.6	61.6	14.4	19.0
1,197	209	780	208	30	19.4	17.4	66.4	65.2	14.2	17.4
5,332	2,314	1,324	1,694	884	41.5	43.4	30.9	24.8	27.6	31.8
707	363	219	125	8	50.6	51.3	34.0	31.0	15.4	11.7
217	128	56	33	1	64.2	59.0	25.4	25.8	10.4	15.2
361	184	107	70	6	49.2	51.0	33.9	29.6	16.9	19.4
300	125	133	51	2	44.4	40.5	39.4	43.0	16.2	16.5
1,130	553	341	235	12	46.8	48.9	35.0	30.2	18.2	20.9
271	134	80	57	1	52.5	49.5	32.5	29.5	15.0	21.0
145	80	39	17	8	58.8	61.4	29.1	26.9	11.1	11.7
13	7	4	2		75.0	53.8	25.0	30.8		15.4
189	77	86	26	8	48.2	40.7	41.8	43.5	10.0	13.8
190	106	59	25	11	60.3	55.8	27.2	31.0	12.5	13.2
525	294	142	89	1	55.6	56.0	29.4	27.0	15.0	17.0
263	87	127	49	5	36.6	33.1	46.7	48.3	16.7	18.6
89	23	13	3	1	72.1	59.0	23.3	33.3	4.6	7.7
102	49	46	7	2	60.7	48.0	37.4	45.1	1.9	6.9
13	13				66.7	100.0	22.2		11.1	
376	125	201	50	6	35.7	33.2	53.8	53.5	10.5	13.3
54	32	11	11		74.6	59.2	16.9	20.4	8.5	20.4
191	84	69	38	2	43.5	44.0	34.8	36.1	21.7	19.9
117	73	31	13	8	58.4	62.4	31.9	26.5	9.7	11.1
90	60	21	9	6	60.7	66.7	25.0	23.3	14.3	10.0

TABLE 16.—Brides Classified by Race, Nativity

County	Total	Single brides									Total	Total
		White				Non-Caucasian						
		Total	Born in Cal- ifornia	Born in other states	Born in foreign born	Negro	Indian	Chinese	Japanese			
California	24,610	23,341	9,107	9,932	4,302	284	59	46	880	3,159	3,651	
Alameda	2,264	2,216	1,101	655	460	39		5	4	278	280	
Alpine												
Amador	29	29	16	6	7					3	3	
Butte	177	177	87	77	13					13	13	
Calaveras	28	28	21	5	2					2	2	
Colusa	32	32	24	4	4					5	5	
Contra Costa	214	211	108	62	43	2		1		18	18	
Del Norte	28	19	7	9	3		9			3	3	
El Dorado	31	30	22	7	1	1				2	2	
Fresno	718	712	270	312	130	5			1	96	93	
Glenn	48	48	25	19	4					1	1	
Humboldt	247	239	143	36	60		8			26	26	
Imperial	171	161	19	115	27	10				19	16	
Inyo	23	21	11	9	1		2			8	6	
Kern	340	335	108	185	44	5				35	34	
Kings	172	167	77	48	47	2	1	1	1	23	22	
Lake	23	19	15	4		2	2					
Lassen	54	50	28	15	7		4			2	3	
Los Angeles	5,468	5,332	971	3,475	886	122	4	2	8	785	741	
Madera	70	69	29	23	17	1				11	11	
Marin	457	457	268	135	54					86	86	
Mariposa	14	11	8	3			3			1	1	
Mendocino	145	139	98	19	22		6			10	10	
Merced	119	119	56	39	24					12	12	
Modoc	52	52	36	15	1					4	4	
Mono	2	2	1	1								
Monterey	137	134	97	20	11				3	19	19	
Napa	172	172	114	35	23					26	26	
Nevada	78	76	59	12	5			2		11	11	
Orange	1,019	1,010	209	668	133	8			1	192	190	
Placer	69	69	37	24	8					11	11	
Plumas	28	27	18	9			1			3	3	
Riverside	401	390	96	245	50	6	4	1		39	35	
Sacramento	720	701	371	217	112	9	1	2	7	96	94	
San Benito	49	49	34	9	6					8	8	
San Bernardino	544	529	122	323	84	12	2		1	86	86	
San Diego	969	948	214	598	136	19	2			158	158	
San Francisco	5,433	4,534	2,015	1,202	1,317	29		26	844	583	566	
San Joaquin	619	613	333	195	85	1		2	3	98	98	
San Luis Obispo	156	156	109	31	16					13	13	
San Mateo	264	262	140	78	44	1			1	32	32	
Santa Barbara	227	225	108	75	42	1			1	24	22	
Santa Clara	756	753	383	235	135	1			2	84	82	
Santa Cruz	215	215	121	65	29					27	26	
Shasta	94	91	59	21	11		3			15	15	
Sierra	10	10	9	1						2	2	
Siskiyou	134	130	69	47	14		4			16	15	
Solano	178	173	109	45	19	2		2	1	26	24	
Sonoma	376	374	231	99	44	1		1		48	48	
Stanislaus	226	225	83	104	38	1				15	14	
Sutter	36	36	25	9	2					3	3	
Tehama	86	86	52	33	1					10	10	
Trinity	16	13	11	2			3			3	3	
Tulare	296	293	106	156	30	2			1	25	25	
Tuolumne	46	46	37	7	2					5	5	
Ventura	149	149	76	43	30					26	26	
Yolo	93	91	55	28	8	2				3	3	
Yuba	88	86	59	18	9			1	1	13	10	

Distribution of White Brides by Nativity, for Counties: 1915 and 1914.

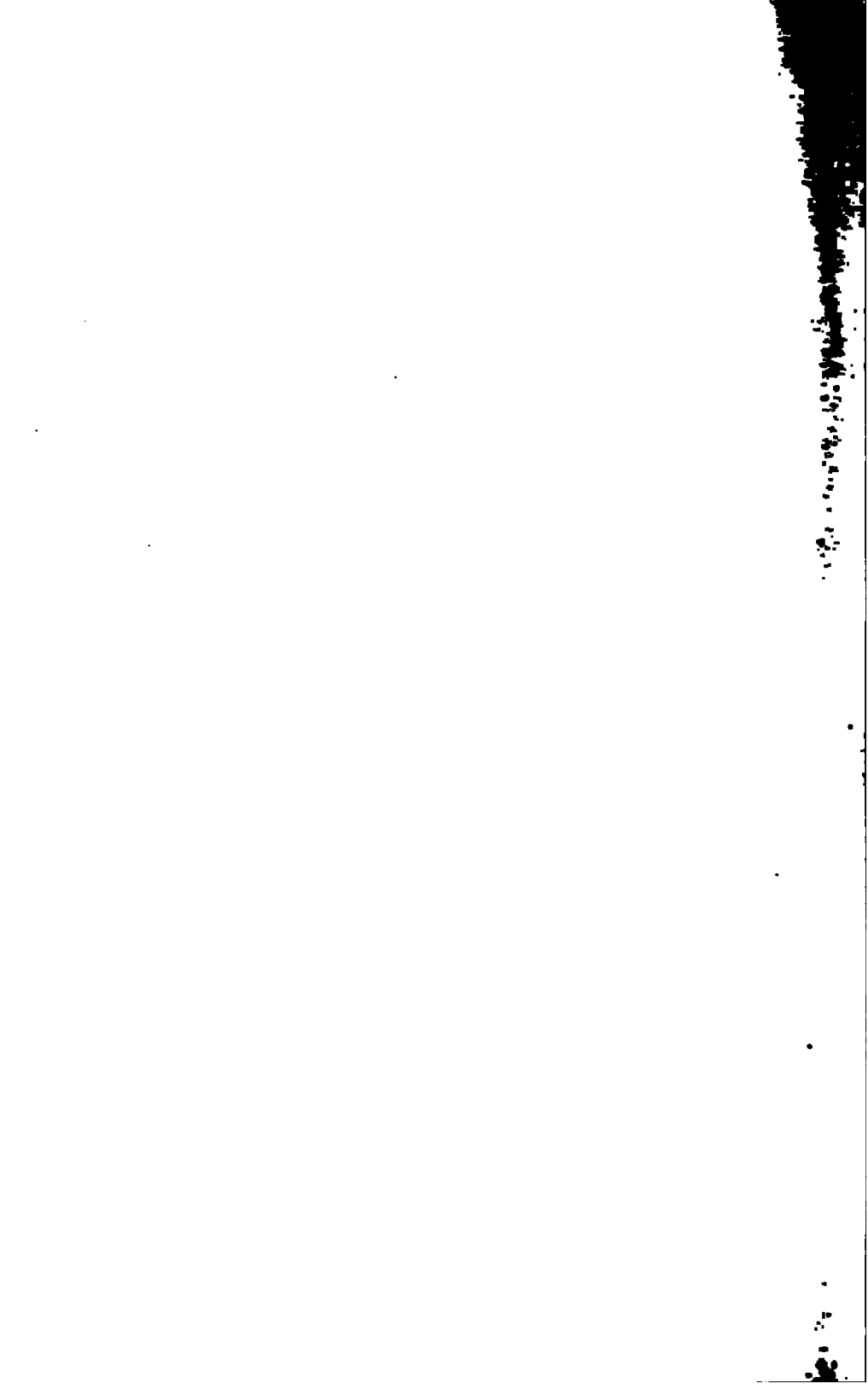
Total brides, 1914					Per cent of white brides					
White					Born in California		Born in other states		Foreign born	
Total	Born in California	Born in other states	Foreign born	Non-Caucasian	1915	1914	1915	1914	1915	1914
30,445	11,073	13,183	6,189	1,457	36.0	36.4	45.4	43.3	18.6	20.3
2,810	1,309	878	623	73	46.2	46.6	32.7	31.2	21.1	22.2
1	1				50.0	100.0			50.0	
49	29	6	14	1	54.3	59.2	20.0	12.2	25.7	28.6
228	113	92	23	7	48.6	49.6	43.5	40.8	7.9	10.1
31	24	3	4		75.8	77.4	15.1	9.7	9.1	12.9
48	31	14	3	3	65.0	64.6	17.5	29.2	17.5	6.2
289	120	88	61	1	49.6	44.6	30.5	32.7	19.9	22.7
24	11	10	3	1	40.7	45.8	48.2	41.7	11.1	12.5
33	23	7	3		72.2	69.7	25.0	21.2	2.8	9.1
971	343	394	234	15	35.2	35.3	45.1	40.6	19.7	21.1
76	42	30	4	1	51.9	55.3	38.5	39.5	9.6	5.2
318	165	72	81	9	56.6	51.9	18.8	22.6	24.6	25.5
240	37	169	34	16	12.4	15.4	70.8	70.4	16.8	14.2
43	18	20	5	4	48.5	41.9	48.5	46.5	3.0	11.6
430	128	245	57	7	29.0	29.8	59.1	57.0	11.9	13.2
205	81	74	50	2	44.6	39.5	27.5	36.1	27.0	24.4
43	25	15	3	1	70.8	58.1	29.2	34.9		7.0
62	33	28	1		52.7	53.2	32.7	45.2	14.6	1.6
7,211	1,251	4,618	1,342	230	16.5	17.4	66.2	64.0	17.3	18.6
80	29	39	12	4	38.1	36.3	40.2	48.7	21.7	15.0
728	397	215	146	2	51.2	54.6	35.4	29.5	13.4	15.9
14	8	5	1		78.6	57.2	21.4	35.7		7.1
210	124	42	44	6	67.1	59.0	17.4	20.0	15.5	21.0
147	72	44	31	1	43.9	49.0	34.6	29.9	21.6	21.1
70	47	21	2	5	68.7	67.1	29.7	30.0	1.6	2.9
2	1		1		66.7	50.0	33.3			50.0
194	117	48	29	1	66.1	60.3	25.9	24.7	8.0	15.0
197	113	66	18	1	61.3	57.4	24.8	33.5	13.9	9.1
82	61	11	10		68.4	74.4	20.0	13.4	11.6	12.2
1,342	264	913	163	13	18.7	19.7	67.8	68.0	13.5	12.3
84	45	30	9	2	49.4	53.6	37.1	35.7	13.5	10.7
30	18	12			62.9	60.0	37.1	40.0		
394	91	242	61	8	23.0	23.1	64.2	61.4	12.8	15.5
1,141	578	380	183	23	48.6	50.7	34.4	33.3	17.0	16.0
76	53	13	10		61.9	69.7	25.4	17.1	12.7	13.2
731	142	450	139	18	21.0	19.4	64.6	61.6	14.4	19.0
1,197	209	780	208	30	19.4	17.4	66.4	65.2	14.2	17.4
5,332	2,314	1,324	1,694	884	41.5	43.4	30.9	24.8	27.6	31.8
707	303	219	125	8	50.6	51.3	34.0	31.0	15.4	11.7
217	128	56	33	1	64.2	59.0	25.4	25.8	10.4	15.2
361	184	107	70	6	49.2	51.0	33.9	29.6	16.9	19.4
309	125	133	51	2	44.4	40.5	39.4	43.0	16.2	16.5
1,130	553	341	236	12	46.8	48.9	35.0	30.2	18.2	20.9
271	134	80	57	1	52.5	49.5	32.5	21.5	15.0	21.0
145	80	39	17	8	59.8	61.4	29.1	26.9	11.1	11.7
13	7	4	2		75.0	53.8	25.0	30.8		15.4
189	77	86	26	8	48.2	40.7	41.8	43.5	10.0	13.8
190	106	59	25	11	60.3	55.8	27.2	31.0	12.5	13.2
525	294	142	89	1	55.6	56.0	29.4	27.0	15.0	17.0
263	87	127	49	5	36.6	33.1	46.7	48.3	16.7	18.6
89	23	13	3	1	72.1	59.0	23.3	33.3	4.6	7.7
102	49	46	7	2	60.7	48.0	37.4	45.1	1.9	6.9
13	13				66.7	100.0	22.2		11.1	
376	125	201	50	6	35.7	33.2	53.8	53.5	10.5	13.3
54	32	11	11		74.6	59.2	16.9	20.4	8.5	20.4
191	84	69	35	2	43.5	44.0	34.8	36.1	21.7	19.9
117	73	31	13	8	58.4	62.4	31.9	26.5	9.7	11.1
90	60	21	9	6	60.7	66.7	25.0	23.3	14.3	10.0

TABLE 17.—Brides Classified by Race, Nativity

County	Single brides										Total	Total
	Total	White				Non-Caucasian						
		Total	Born in Cal.	Born in foreign	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese		
California	25,261	24,023	9,439	9,644	4,940	290	56	27	865	3,179	1,043	
Alameda	2,264	2,216	1,104	619	493	36		4	8	277	265	
Alpine	1	1	1									
Amador	45	44	27	5	12		1				4	
Butte	186	179	91	72	16	2	4		1	24	24	
Calaveras	25	25	20	2	3						3	
Colusa	40	37	26	9	2	1	2				3	
Contra Costa	216	216	99	66	51					26	25	
Del Norte	24	23	11	9	3		1			1	1	
El Dorado	27	27	22	2	3						3	
Fresno	787	780	239	294	197	2	1	2	2	111	103	
Glenn	61	60	33	24	3		1			7	7	
Humboldt	267	259	139	50	70		8			30	30	
Imperial	200	200	32	139	29	9				21	16	
Inyo	36	32	15	16	1		4			7	7	
Kern	338	332	102	188	42	5			1	44	43	
Kings	166	166	71	55	40					17	16	
Lake	83	82	21	9	2		1			7	7	
Lassen	52	52	30	22						3	3	
Los Angeles	5,910	5,762	1,112	3,553	1,097	125	3	5	15	801	753	
Madera	63	62	25	29	8		1			13	11	
Marin	507	506	304	129	73	1				82	81	
Mariposa	12	12	8	3	1					2	2	
Mendocino	166	161	99	26	36		5			23	22	
Merced	128	127	67	32	28		1			9	9	
Modoc	66	62	42	19	1	1	3			5	4	
Mono	1	1	1									
Monterey	157	156	102	35	19				1	17	17	
Napa	151	150	96	41	13	1				22	22	
Nevada	71	71	55	6	10					2	2	
Orange	964	946	226	613	107	8				179	177	
Placer	67	65	36	22	7	1			1	5	5	
Plumas	23	23	13	10						4	4	
Riverside	323	316	80	188	48	3	3		1	44	43	
Sacramento	867	861	470	244	137	13			3	137	133	
San Benito	66	66	50	9	7					7	7	
San Bernardino	598	580	129	348	103	9	4			87	83	
San Diego	929	908	175	565	168	17	3	1		171	164	
San Francisco	5,138	4,282	1,977	904	1,401	18		12	826	476	457	
San Joaquin	555	550	303	154	93	3		2		83	81	
San Luis Obispo	183	182	122	36	24			1		15	15	
San Mateo	271	269	144	69	56	1			1	35	33	
Santa Barbara	254	252	111	97	44	1			1	27	27	
Santa Clara	908	900	477	216	177	6			2	106	104	
Santa Cruz	214	214	112	53	49					27	26	
Shasta	121	114	74	25	15	3	4			11	10	
Sierra	10	10	7	2	1					2	2	
Siskiyou	157	151	65	63	23	2	4			14	13	
Solano	162	154	89	45	20	8				15	14	
Sonoma	420	420	250	102	68					49	46	
Stanislaus	230	228	80	104	44	2				24	23	
Sutter	87	86	23	11	2		1			2	2	
Tehama	76	74	40	32	2	1	1			12	12	
Trinity	8	8	8							1	1	
Tulare	324	323	113	167	43				1	29	26	
Tuolumne	34	34	26	4	4					13	13	
Ventura	162	161	79	44	28	1				23	22	
Yolo	95	89	62	18	9	6				15	13	
Yuba	81	76	54	15	7	4			1	3	3	

and Marital Condition, for Counties: 1914.

Widowed brides							Divorced brides								
White			Non-Caucasian				Total	White				Non-Caucasian			
Born in Cal. female	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese		Total	Born in Cal. female	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese
631	1,612	800	107	4	8	17	3,462	3,379	1,008	1,927	449	72	4	2	5
76	117	72	12				342	329	129	142	58	11		1	1
1	1	2					1	1	1						
9	9	6					25	25	13	11	1				
1	1	1					3	3	3						
2		1					3	3	3	5					
8	9	8	1				28	28	13	13	2				
	1														
	3						3	3	1	2					
23	50	30	6		2		88	88	31	50	7				
5	2						9	9	4	4	1				
13	11	6					30	29	13	11	5		1		
	12	4	5				26	24	5	18	1	2			
1	4	2					4	4	2		2				
11	20	12	1				55	55	15	37	3				
3	8	5	1				24	23	7	11	5		1		
3	3	1					4	4	1	3					
1	1	1					7	7	2	5					
61	511	181	45			3	730	696	78	554	64	30	1		3
2	7	2	2				8	7	2	3	2	1			
23	32	26	1				141	141	70	54	17				
	2														
9	5	8				1	27	27	16	11					
1	5	3					11	11	4	7					
2	1	1		1			4	4	3	1					
							1	1			1				
5	5	7					21	21	10	8	3				
7	11	4					25	25	10	14	1				
1	1						9	9	5	4					
9	130	38	2				222	219	29	170	20	3			
1	3	1					14	14	8	5	1				
3	1						3	3	2	1					
3	30	10			1		35	35	8	24	3				
45	58	30	2			2	160	157	63	78	16	3			
2	2	3					3	3	1	2					
5	50	23	3	1			69	68	8	52	8	1			
18	119	27	6		1		127	125	16	96	13	2			
135	165	157	11		2	6	602	593	202	255	136	7		1	1
31	29	21	1			1	77	76	29	36	11	1			
3	8	4					20	20	3	12	5				
14	12	7	2				61	59	26	26	7	2			
6	20	1					30	30	8	16	6				
25	41	37				1	129	126	50	54	22	3			
8	12	6				1	31	31	14	15	2				
5	4	1		1			21	21	10	10	1				
	1	1					1	1		1					
3	9	1		1			26	25	9	14	2		1		
5	4	5	1				24	22	12	10		2			
20	15	13	1				57	57	24	25	8				
3	16	4	1				14	12	4	7	1	2			
	2						1	1			1				
2	6	4					16	16	7	8	1				
1							4	4	4						
5	17	4	1		1	1	29	27	7	17	3	2			
3	5	5					7	7	3	2	2				
1	15	6			1		18	18	4	10	4				
5	6	2	2				15	15	6	7	2				
1		1				1	12	12	5	6	1				



TWENTY-FIFTH BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

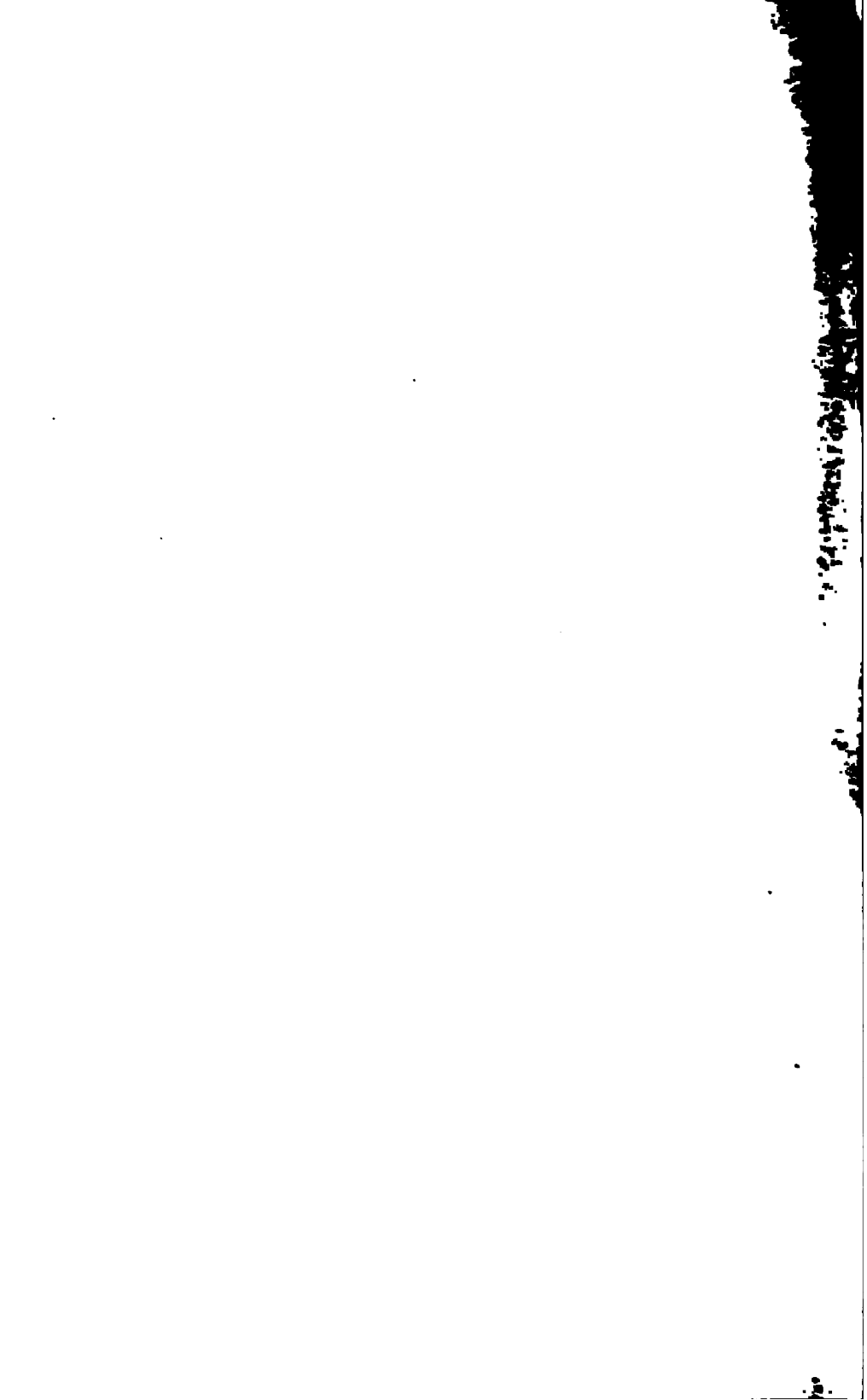
CALIFORNIA

FOR THE

Fiscal Years from July 1, 1916, to June 30, 1918



**CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO
1918**



TWENTY-FIFTH BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

CALIFORNIA

FOR THE

Fiscal Years from July 1, 1916, to June 30, 1918



CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO
1918

TWENTY-FIFTH BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

CALIFORNIA

FOR THE

Fiscal Years from July 1, 1916, to June 30, 1918



CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO
1918

CONTENTS.

	PAGE
REPORT OF THE SECRETARY	9
Public Health throughout California—Some of the Important Problems for Solution—The District Health Officers—The Pure Milk Laws—The Common Drinking Cup Law—The Common Towel Law—Malaria Control—The Prevention of Hookworm—Ophthalmia Neonatorum—Co-operation with Military and Naval Authorities in Handling Military Camp Problems—Control of the Venereal Diseases—Bubonic Plague and Squirrel Eradication—Child Hygiene—Smallpox—Typhoid Fever Control.	
REPORT OF THE BUREAU OF ADMINISTRATION	24
Work of State District Health Officers.....	24
Northern District, Harold F. Gray, Gr. P. H.....	24
North Coast District, Allen F. Gillihan, M.D.....	24
Central Coast District, Robert N. Hoyt.....	26
Central District, R. W. Nauss, M.D.....	28
South Coast District, E. A. Ingham.....	30
Southern District, E. A. Ingham.....	31
Sanitary Inspections, Edward T. Ross, Sanitary Inspector.....	33
Finance, Guy P. Jones, Assistant to the Secretary.....	40
Morbidity Reports	46
REPORT OF THE BUREAU OF COMMUNICABLE DISEASES	65
Division of Hygienic Laboratory.....	65
I. Biological Examinations—Anthrax—Botulism—Diphtheria—Dysentery—Gonococcus Infection—Hookworm and Intestinal Worms—Intestinal Protozoa—Leprosy—Malaria—Meningitis—Pneumonia—Rabies—Rocky Mountain Spotted Fever—Syphilis—Tuberculosis—Typhoid—Typhus	65
II. Preventive Therapeutics—Antirabic Virus—Typhoid and Typhoid-Paratyphoid Vaccine—Ophthalmia Neonatorum Prophylaxis.....	66
Division of Epidemiology.....	67
Epidemiological Investigations from July, 1916, to June, 1918—Depositories for the Mailing Outfits of the Bureau of Communicable Diseases	68
Division of Entomology—Mosquito Investigations—Mosquito Abatement Districts Bill	75
Division of Parasitology—Hookworm Campaign in the Mines of California—Other Activities	78
Laboratory Technique—Anthrax—Botulism—Diphtheria—Dysentery—Gonococcus Infection—Hookworm and Other Intestinal Worms—Intestinal Protozoa—Malaria—Meningitis—Plague—Pneumonia—Rabies—Rocky Mountain Spotted Fever—Syphilis—Tuberculosis—Typhoid Fever—Typhus Fever	82

	PAGE
REPORT OF THE BUREAU OF TUBERCULOSIS	96
Standardization for Tuberculosis Wards or Pavilions of County Hospitals— List of Subsidized Hospitals—Rejected and Discharged Soldiers—Field Work—Special Investigations—Indian Work—California Tuberculosis Asso- ciation—California's Next Step—Educational Literature.	
REPORT OF THE BUREAU OF REGISTRATION OF NURSES	112
Historical Sketch—Examinations—Inspection of Schools of Nursing— Accredited Schools of Nursing—Requirements for Accredited Schools of Nursing—Admission of Students to Schools of Nursing—Combined Courses in Universities and Colleges—Publications.	
REPORT OF THE BUREAU OF SANITARY ENGINEERING	120
Value of the Bureau to the State—Future Responsibilities of the Bureau— New Work Developing—Recent Sanitary Engineering Legislation in Cali- fornia—Staff and Appropriation—Summary of Work Performed.	
REPORT OF THE BUREAU OF FOODS AND DRUGS	125
Official Samples, Food and Food Products—Unofficial Samples, Food and Food Products—Unofficial Samples, Miscellaneous Products—Official Samples, Drugs—Unofficial Samples, Drugs—State Institution Samples, Foods and Other Supplies—Material Condemned and Destroyed for Year Ending June 30, 1917—Cold Storage Goods Condemned and Destroyed for Year Ending June 30, 1917—Foods and Drugs Condemned and Destroyed for Year Ending June 30, 1918—Cold Storage Goods Condemned and De- stroyed for Year Ending June 30, 1918—Materials in Cold Storage—Exten- sions Granted for Materials in Cold Storage—Summary of Analytical Work.	
REPORT OF THE BUREAU OF SOCIAL HYGIENE	122
Historical Sketch—Method of Co-operation with the U. S. Army, U. S. Navy and U. S. Public Health Service—Reporting of Cases—Control of Prostitutes—Examination of Persons Arrested for Crimes Involving Moral Turpitude—Increased Facilities for Diagnosis and Treatment—Direct Aid from Medical Staff of the Bureau—Approved Dispensaries and Hospitals— Hospital and Clinical Facilities Increased—Free Arsephenamine—Educa- tional Measures—Suppression of Prostitution—Rehabilitation of Prosti- tutes—Increase of Facilities for the Care of the Mental Deficient—Progress in Various Communities—Cases of Venereal Disease Reported to State Board of Health 1916-1918—Arsenobenzol Report for Year Beginning August, 1917, and Ending June 30, 1918—Report of Arsenobenzol Expendi- ture from September, 1917, to July 1, 1918.	
REPORT OF THE BUREAU OF VITAL STATISTICS	190

LIST OF STATISTICAL TABLES.

TABLE No.		PAGE.
I. Summary.		
1.	Main and minor geographic divisions of California, with counties included in each-----	191
2.	Birth, death and marriage totals, with increase and rate per 1,000 population, for California: 1906 to 1917-----	192
3.	Estimated midyear population, births, death and marriages, and rates per 1,000 population, for counties: 1917 and 1916-----	193
4.	Estimated midyear population, births and deaths, and rates per 1,000 population, for individual cities of 5,000 in 1910 and rest of state: 1917 and 1916-----	195
5.	Births and deaths (exclusive of stillbirths) reported for registration districts (cities, towns and rural parts of counties): 1917 and 1916--	196
II. Births.		
6.	Births classified by sex and race, and by sex and maternal nativity, for counties: 1917 -----	202
7.	Births classified by sex and race, and by sex and maternal nativity, for counties: 1916 -----	204
8.	Births classified by sex and race, and by sex and maternal nativity, for cities: 1917 -----	206
9.	Births classified by sex and race, and by sex and maternal nativity, for cities: 1916 -----	208
10.	Mothers classified by race and nativity, with per cent distribution of white mothers by nativity, for counties: 1917 and 1916-----	210
11.	Children classified by order of birth, with per cents, for California: 1917 and 1916-----	212
12.	Children classified by order of birth, for mothers, classified by race and nativity, with per cents, for California: 1917 and 1916-----	212
III. Infant Mortality.		
13.	Birth registration and infant mortality data, for California: 1906 to 1917	213
14.	Infant mortality rates, for counties: 1917-----	214
15.	Infant mortality rates, for cities: 1917-----	215

TABLE No.	IV. Deaths.	PAGE
16.	Deaths from certain principal causes, with proportion per 1,000 total deaths and death rate per 100,000 population, for California: 1908 to 1917 -----	218
17.	Births and deaths classified by month of occurrence, with annual rates, for California: 1917 and 1916 -----	220
18.	Number and per cent of deaths from tuberculosis, for geographic divisions: 1917 and 1916 -----	220
19.	Deaths from tuberculosis classified by length of residence in California, with per cents, for geographic divisions: 1917 and 1916 -----	221
20.	Deaths from tuberculosis classified by length of residence (in months), with per cents, for southern California: 1917 and 1916 -----	221
21.	Number and per cent of deaths from tuberculosis among decedents classified by length of residence in California, for territory north and south of Tehachapi: 1917 and 1916 -----	222
22.	Number and per cent of deaths occurring each month from tuberculosis, California: 1917 and 1916 -----	222
23.	Deaths from certain principal causes classified by sex, with per cents, for California: 1917 and 1916 -----	223
24.	Deaths from certain principal causes classified by race, with per cent white, for California: 1917 and 1916 -----	224
25.	White decedents dying from certain principal causes classified by nativity, with per cents, for California: 1917 and 1916 -----	225
26.	Deaths from certain principal causes classified by age periods, for California: 1917 and 1916 -----	226
27.	Per cent distribution, by age periods, of deaths from certain principal causes, for California: 1917 and 1916 -----	227
28.	Median age at death, for geographic divisions: 1917 and 1916 -----	228
29.	Median age at death from selected causes, for California: 1917 and 1916 -----	229
30.	Deaths from selected causes of males and females 15 years and over, classified by marital condition, for California: 1917 and 1916 -----	230
31.	Per cent distribution, by marital condition, of deaths from selected causes of males and females 15 years and over, for California: 1917 and 1916 -----	231
32.	Deaths from each specified disease and class of diseases, for 10 minor geographic divisions of California: 1916 -----	230
33.	Deaths from each specified disease and class of diseases, for 10 minor geographic divisions of California: 1916 -----	230
34.	Deaths from certain principal causes, for counties arranged geographic: 1917 and 1916 -----	246

CONTENTS.

vii

TABLE No.

PAGE.

35.	Proportion per 1,000 total deaths from certain principal causes, for selected counties (reporting 300 deaths) arranged geographically: 1917 and 1916.....	252
36.	Deaths from certain principal causes for cities of 5,000 in 1910, arranged geographically: 1917 and 1916.....	256
37.	Proportion per 1,000 total deaths from certain principal causes, for selected cities of 5,000 in 1910 (reporting 200 deaths) arranged geographically: 1917 and 1916.....	260

V. Marriages.

38.	Marriages classified by number in order and marital condition of parties, with per cents, for counties: 1917.....	262
39.	Marriages classified by number in order and marital condition of parties, with per cents, for counties: 1916.....	264
40.	Brides classified by race and nativity, with per cent distribution of white brides by nativity, for counties: 1917 and 1916.....	266
41.	Brides classified by race, nativity, and marital condition, for counties: 1917	268
42.	Brides classified by race, nativity, and marital condition, for counties: 1916	270

LETTER OF TRANSMITTAL.

OFFICE OF CALIFORNIA STATE BOARD OF HEALTH.

SACRAMENTO, September 15, 1918.

To His Excellency, WM. D. STEPHENS,

Governor of California.

DEAR SIR: In accordance with the state law, I herewith transmit to you the twenty-fifth biennial report of the State Board of Health for the sixty-seventh and sixty-eighth fiscal years.

Respectfully submitted.

WILFRED H. KELLOGG,

Secretary of State Board of Health.

REPORT OF THE SECRETARY.

With the progressive enlightenment of the people in matters pertaining to human welfare in general and the possibilities in the way of increasing health and lengthening life by applying this knowledge has come in recent years increased recognition of the importance of health departments by legislative bodies, national, state and municipal. California has shared in this march forward and in a degree commensurate with her recognized position of advancement among the states in all matters pertaining to the public welfare. The result of this general forward movement has been a steady increase in the activities and responsibilities of the State Board of Health, which in turn, have necessitated increased expenditures beyond the natural increase as accounted for by the growing population of the state. That these increased expenditures have been wisely made and are amply justified may be gleaned from the consideration of one item only—that of the control of typhoid fever. In 1906 the board had no bureau of sanitary engineering and no bureau of communicable diseases and the typhoid death rate for that year was 32.2, indicating a probable case incidence of 7,000 for that year. Translated into human lives and dollars and cents this meant an economic loss of \$2,100,000, to say nothing of the loss of 650 human lives. During the year just ended the typhoid mortality rate was 6.1, which means that estimated for the present population of the state there are now living 9,300 people who would have been dead had the 1906 rate continued, and still the per capita expenditure by the State Board of Health is less than seven cents per annum.

That public health is purchasable and that communities may within reasonable natural limitations determine their own death rates are facts that are fast securing public recognition in California. The exceptions are in the rural communities and the smaller incorporated towns. Here lies one of our greatest problems; for the people of these communities are, by reason of this lack of efficient health supervision, suffering by comparison with their more fortunate urban neighbors in respect to their expectation of freedom from death by preventable diseases and possibly also to a certain extent in their vital resisting powers to infection. Strange and unexpected as it may seem, nevertheless it is a fact that morbidity and mortality tables show a decided advantage in city over rural life and the military reports credit the city boy with greater staying powers than the country boy.

Doubtless the universal lack of any sort of medical school inspection and infant hygiene teaching has a great deal to do with this, operating largely through the neglect in early life of correctable defects, that would have been recognized under more favorable public health conditions.

The remedy lies in one of two directions: First, the provision of legal means for the creation of local health departments having supervision over rural territory, the adequate financing of these local health units, and the development of the principle of full-time health service. Second, an expansion of the duties of the State Board of Health to the extent of the actual administration of the public health in such com-

munities, taking from them the obligation to serve their citizens in such matters, in which obligation they are now derelict.

Considering the first alternative, it will be immediately appreciated that securing provision for the legal organization of efficient local health departments is the least of the difficulty. Indeed, we already have legal provision for health officers for incorporated towns and for county officers having jurisdiction over unincorporated territory. Furthermore, in the 1917 session of the legislature an act was passed providing for the incorporation of local health districts which could embrace towns and rural territory in any sort of combination, each incorporated town and each county taking part in the formation of such a district, forming one unit thereof and being represented by one trustee on the board. A more difficult matter is the education of the public and of the governing bodies of these rural communities to the advantages to be gained by supporting an adequate health department, providing over by a full-time and properly qualified health officer.

It is my belief, based on many years' observation and experience in this work, that progress in this direction will continue to be slow and that we shall be forced eventually to turn to the second alternative if we are to see the rural districts cared for as adequately as the cities now are in public health matters. It is nearly two years since the enactment of the Local Health Districts Act and not one district has yet been formed; and although it has been required by statute for many years that the counties shall each have a health officer, in only one county is there a full-time, properly qualified health officer, equipped with a staff of assistants and reasonable financial support. In all of the others the health officer devotes little or none of his time to the duties of his office and is not paid to do more. Usually he is selected for reasons other than his qualifications as a health officer.

The plan of placing the burden of local health administration outside of the larger cities on the State Board of Health has many points in its favor, among which may be enumerated:

First—The State Board already has an organization and staff of experts, such as no city in the state, however large, could ever hope to maintain.

Second—The saving of overhead expenditures would be tremendous, as the only additional employees needed for any given locality would be the district health officer, public health nurses and inspectors.

Third—An important advantage would be in the wiping out of the boundary lines of jurisdiction which now exist between town and county territory and which result in a state of confusion, which in some localities virtually nullifies the efforts of conscientious officials to serve the people efficiently. Should the state assume the supervision of local health administration, excepting within freeholders chartered cities, it would necessitate an increase in the staff of district health officers from six, the present number, to thirty or forty, and would necessitate an increase that would notably affect the budget necessary for the support of the department. However, increases at one end would be more than balanced by saving at the other and increased efficiency would be the inevitable result.

During the past year's experience with district health officers, small as has been the force in comparison with the large area of the state,

numerous instances have been uncovered by them, showing the urgent need of better health supervision than now obtains in most rural communities under the present system. As an example, the epidemic of smallpox which was studied in a certain unincorporated town having about twenty-five hundred inhabitants may be mentioned. The health officer traced the infection to this town from one of the shipbuilding centers. His investigation disclosed the fact that smallpox had existed unrecognized in this community for three months or more in a mild form, during which time nearly one hundred cases had occurred. This condition of affairs, which had limitless possibilities for the spread of the disease to other communities, was the direct result of the lack of any organized health department in that community. The work accomplished by our district health officer exemplified the possibilities capable of realization by an expansion of the service. Could this be done by increasing the force to such an extent that the entire state would be covered adequately, the same attention would be paid to local affairs as would be possible otherwise only with a full-time and properly supported and qualified local health officer.

The District Health Officer.

During the biennial period just ended a number of new activities have been added to the duties and responsibilities of the State Board of Health. Among these may be mentioned, first, the newly authorized staff of state district health officers provided for by the legislature of 1917. In the organization of this new work the state was divided into six districts, the North Coast, the Central Coast, the South Coast, and the Northern, Central and Southern. This division of the state gave a population to the North Coast District of 216,000, the Central Coast District, 1,068,729, the South Coast 934,075, the Northern District 278,260, the Central 310,613, and to the Southern 154,511. Each of the six men provided for under this appropriation was secured by a rigid civil service examination which was open to the entire country, and the manner in which they have attacked the problems presented in their various districts is the best of evidence that this manner of selection of employees, who must be skilled in professional and technical subjects, is the very best that can be devised. The co-operation of these men with the Bureau of Communicable Diseases, the Bureau of Social Hygiene, and the other divisions of the State Health Department has been of the greatest service and benefit to the divisions concerned. Their influence in stimulating interest on the part of some of the local health officers has been of great value to the cause of public health in general and many communities have profited by their advice and instruction in sanitary matters. Many lectures upon health subjects have been given before public gatherings, teachers institutes, conventions, etc., by these officers and this means of enlightening local communities upon their health problems has been encouraged and is proving to be an important factor for the creation of a sentiment for full-time health service among the communities of the state.

The tendency is quite common on the part of local health officers to welcome the state man with the idea that he is going to take over some of his work for him, and some have felt a keen disappointment in finding that it was not the intention of the state to take over the actual

direction of strictly local health matters. With a staff of only six men for the state, covering 155,652 square miles, it has proven impossible for the men to devote sufficient time to details connected with local affairs to warrant this procedure to any greater extent than is necessary for an occasional object lesson to local officials as to what can be accomplished. Were there much attempted in this line a large part of the state would necessarily be left without attention so far as the state officers are concerned. Much has been accomplished by the district health officers in the strengthening of the relationship existing between the state and local health departments which result naturally follows their actual personal contact with the local health officers in the course of their frequent trips through their territories.

A careful consideration of the results accomplished by the officers and of the latent possibilities disclosed by a perusal of their reports leads to the conclusion that the employment of these officers has been a good investment, but that the full benefits possible of achievement through an organization of this kind can not be secured until more men are employed with a consequent reduction in the size of the districts which they must cover. In fact, the carrying out of the plan to its logical conclusion would mean an extension of the responsibilities of the state organization in local affairs to the extent of the actual assumption of local administration by the State Board of Health outside of freeholders chartered cities.

Pure Milk.

The milk law, enacted in 1917, has, so far in its operation, given promise of being a most important factor for improving the health and for limiting the spread of certain communicable diseases. Although the enforcement of this law is entrusted principally to the State Dairy Bureau, certain features of its enforcement are matters for the State Board of Health, and through the medium of co-operation between the two state departments, much good is to be looked for in the future.

As a public health problem the production and distribution of milk ranks high in importance, and the control of these matters is more intimately associated with the recognized duties and responsibilities of a health department than with those of any other subdivision of the state government. This should be recognized in a closer association between the administrators of the dairy and milk law and the State Board of Health than exists at present.

Milk is the only largely consumed food that is used chiefly in a raw state, and this accounts for the fact that milk is responsible for more sickness and deaths than all other foods combined. It is a perfect culture medium for bacteria, an efficient vehicle for the transport of bacteria, present by reason of diseases of the cow or introduced during the process of collection and delivery to the consumer.

Among the diseases that may be transmitted by milk are typhoid, diphtheria, scarlet fever, Malta fever, septic sore throat, foot and mouth disease, milk sickness and tuberculosis. The first three are due to bacteria peculiar to man and which are present by contamination of the milk by cases or carriers of the infection among the persons having to do with its collection or distribution. The protection of the milk user

against the possibility of disease, having its origin in the milk supply, lies in the efficient control of the production, handling and distribution of milk. Better supervision of pasteurizing plants is necessary and the managers of these plants should have a better knowledge of the scientific principles underlying the working of their machines. They should be better informed on the elementary facts concerning the relationship of the degree of heating of the milk, the rapidity of cooling and the cleanliness of apparatus to the bacterial content of the product. However, the safety of milk supplies is not to be insured solely by attention to pasteurization nor to the exclusion of known disease producing bacteria.

The number of bacteria in milk is of great importance aside from the question of the presence of pathogenic or disease producing forms, especially where the milk is intended for consumption by young infants. The products of growth of so-called harmless bacteria, when these bacteria are present in the numbers frequently observed in market milk, are sufficient to cause grave intestinal disturbances in babies and are the principal cause of summer complaint among them. It is possible to produce a bacteriologically clean and safe product without going to the expense for equipment necessary in furnishing a certified dairy. Education and instruction in these matters should be carried to every dairyman in the state. The problem is one of public health and should be so recognized.

The Drinking Cup Law.

Chapter 744, enacted at the 1917 session of the legislature, provided for the sterilization of drinking receptacles in all public places or the alternative use of individual cups. Regulations have been adopted under this act prescribing the methods to be adopted in the sterilization of drinking receptacles used at soda fountains, saloons and all other public places where articles of drink are served to the public. These regulations prescribe four alternative methods: sterilization by steam, sterilization by boiling, sterilization by immersion in a 5 per cent caustic soda solution and the use of individual drinking cups of paper or other temporary material. Experiments conducted in the State Hygienic Laboratory with various chemical means of disinfection demonstrated the fact that the cheapest and most efficient method was immersion in a solution of caustic soda, and this method has been urged very widely and much has been accomplished by the district health officers in securing the installation of means for carrying it out. The growing recognition of the importance of the transfer of mouth secretions by means of eating and drinking utensils in the spread of many infectious diseases makes easier the enforcement of such laws as this for the sterilization of drinking glasses. As the practice is extended and the public becomes educated to expecting and demanding cleanliness in such matters a substantial improvement is to be looked for in the morbidity figures for the sputum-borne infections.

The Common Towel Law.

The common towel law, which was enacted in 1917, has been very generally enforced and the public has become so educated to the evils of the common roller towel that few instances of the infraction of this

law are to be found. The following ticket, widely distributed among traveling men, has proven of great value in securing the general observance of the law:

DON'T USE THIS TOWEL.

It is a common towel and may carry disease. Common towels are prohibited by law in hotels, restaurants, factories, stores, barber shops, office buildings, schools, public halls, railway stations, boats, or any other public place, room or conveyance. Violation of this act, chapter 745, acts of 1917, constitutes a misdemeanor, punishable by a fine not exceeding \$25.

**These Notices Are Supplied by
CALIFORNIA STATE BOARD OF HEALTH, Sacramento.**

Malaria.

The principal activities under the heading of the eradication of malaria have been carried on under the Mosquito Abatement Act of 1915. This act provided for the establishment of local districts for the eradication of mosquitoes, the procedure being the presentation of a petition signed by the residents of the district to the number of 10 per cent of the vote cast for governor at the previous election. The boards of supervisors, upon receipt of such petition, are, under this act, authorized to create a mosquito abatement district and to levy a special tax for carrying on the work, such as oiling, draining, payment of salaries, which tax can not exceed 10 cents per hundred dollars of assessed valuation of the property within the district. At the beginning of the present biennial period two such districts had been formed, one comprising the city of Sausalito and vicinity, and the other, the cities of San Mateo, Burlingame and Hillsborough. During the present biennial period, under the stimulus of the Division of Entomology of the Bureau of Communicable Diseases, seven additional districts have been formed in various parts of the state and as many more are in process of formation. These districts have been especially active in the Sacramento and San Joaquin valleys where malaria is one of the most important public health problems. While malaria is especially significant as a factor in producing physical unfitness, it also causes many needless deaths each year. The death rate from malaria, never very large as compared to other infections, has been declining steadily in recent years. As with hookworm, the magnitude of the problem and its importance to the community is evidenced not so much by the deaths resulting from its presence in the community as by the large amount of illness and physical incapacity with consequent great economic loss and predisposition to other infections.

Imperfections in the present law have been found in its operation, but with all its faults much good has already been accomplished. While the morbidity statistics of malaria are much more significant than the mortality statistics, the following table of the death rate from this disease during the past ten years suggests that the great reduction in

mortality must indicate a corresponding improvement in morbidity, actual figures for which are lacking:

	Number of deaths	Death rate per 100,000 population
1909	112	4.9
1910	113	4.7
1911	121	4.9
1912	101	3.9
1913	77	2.9
1914	70	2.5
1915	45	1.6
1916	54	1.8
1917	47	1.5
1918		

The reporting of cases of malaria must be improved greatly and it will be one of the duties of the district health officers in the future to see that local physicians are alive to their responsibilities in this matter and that they do not neglect it, as has been the rule in the past. It is also necessary that the powers of the board be strengthened in the matter of compelling the proper screening of habitations in malarial districts. Improvement is needed in the present law to the end that the direction of the work shall be upon a better basis, preferably in the hands of the State Board entirely, which should be empowered and financed to supervise the field work by the appointment and payment of the directors of the abatement districts. According to the statement of Mr. Freeborn, who has been the acting director of the division during the past year, it costs on an average of \$250 per square mile per year to carry on the work of mosquito abatement, which cost will decrease somewhat with succeeding years as permanent control is inaugurated. Under the present Mosquito Abatement Act limiting the tax to ten cents per one hundred dollars, an average valuation of nearly four hundred dollars per acre is required to raise sufficient money to prosecute the work properly. As improved agricultural land in California probably does not average in value over \$180 per acre, it follows that it is necessary at present in most cases to include a municipality within the district in order to raise sufficient funds to insure success. It is manifest that a higher tax rate can not be considered, so that the proper solution would seem to be the proposed amendment to the act placing the employment of the directors of the districts in the hands of the State Board of Health, which would have the effect not only of lightening the financial burden of the district, but will, which is fully as important, insure the scientific direction of the work under the department's Division of Entomology.

Hookworm.

Through its Division of Parasitology, the State Board of Health is alert to the possibilities which exist in the natural conditions which favor the spread of oriental and tropical parasitic infections. By reason of its semitropical climate, its close relation commercially to the oriental countries and to the presence in considerable numbers in certain portions of the state of oriental persons, principally Japanese and Hindus,

the investigation of these diseases is of great importance. In September, 1917, an intensive campaign for the eradication of hookworm from the mines of California was begun by the Division of Parasitology, continuing work which had been carried on previously by the Hygienic Laboratory. A very complete survey of the gold mines was made and by co-operation with other agencies, such as the Industrial Accident Commission, many infected miners were treated. The presence of hookworm in California has been confined so far as known to the deep gold mines. A few years ago a large percentage of the miners in the Mother Lode District were infected with hookworm. Many thousands of fecal specimens have been examined, a standard treatment prescribed and, through the co-operative agencies mentioned above, very generally applied. In addition there has been undertaken a thorough campaign of sanitation in the mines by which the conditions favorable to the spread of hookworm, by contamination of the soil, have been removed.

The report of the director of the division is referred to for a detailed account of the survey. This division has recently undertaken a new line of work in the investigation of oriental and tropical intestinal parasitic infections in the delta region and among the rice fields. For this purpose a houseboat has been equipped as a floating laboratory with living quarters for the workers, and is now engaged in this work in the San Joaquin Valley. Reference is made, for those particularly interested in the work of this Division, to publications by the staff, three of which have appeared as a departmental series.

Further extensions of the powers of the board are needed in the matter of the regulations for the treatment of venereally diseased persons, the prohibition of the selling of nostrums for self-treatment, and the suppression of quack advertising. It is hoped that some of these deficiencies will be corrected at the coming session of the legislature, thus enabling California to continue in the van of progress in the matter of the administration of this most important phase of public health work—the control of venereal disease.

Ophthalmia Neonatorum.

The prevention of ophthalmia neonatorum was a subject of concern before the establishment of the Bureau of Social Hygiene. Outfits of nitrate of silver solution have been distributed, free of charge, through the Bureau of Communicable Diseases, to physicians and midwives, and birth certificates are provided with a query as to whether or not this measure has been used. During the biennial period just ended, 10,600 of these outfits were distributed.

Co-operation With Military and Naval Authorities in Handling Military Camp Problems.

Through the Division of Sanitary Inspection much work was accomplished in extra cantonment zone sanitation during the period of mobilization of troops. It is gratifying to record that the organization and reputation for efficiency of the state health organization is such that the United States Public Health Service did not consider it necessary to detail service officers for this work in California. The food sanitation act and the sterilization of drinking utensils law were

rigidly enforced by our own officers in the vicinity of the various camps. Many permanent improvements and hundreds of reinspections were made and much is to be expected in the future as a result of the educational influence of these measures.

The Bureau of Communicable Diseases with its Hygienic Laboratory was able to render valuable aid to the government authorities while at the same time serving our own citizens. About three thousand Wassermann blood tests were performed by the laboratory for the Mare Island Station, the Submarine Base at San Pedro and the Reserve Training Camp at San Pedro. The bureau also did diagnostic work for the School of Military Aeronautics and the Students' Army Training Camp at Berkeley, and for the United States Naval Training Camp and Fort McArthur at San Pedro.

Through the Division of Entomology the supervision of mosquito eradication work in the vicinity of the San Pedro, Wilmington and Long Beach shipyards was carried on successfully at a time when the mosquito nuisance threatened to become so great as to stop the work of shipbuilding.

Other activities of a similar nature were some very extensive laboratory examinations for meningitis carriers carried on for the Military School of Aeronautics at Berkeley and in co-operation with the United States Public Health Service and the cities of Los Angeles and San Diego for the benefit of the naval stations at those cities.

The Bureau of Sanitary Engineering is credited with several instances of valuable aid extended to the military authorities in improving the sanitation of camps. The following instances will serve as examples, but do not represent the entire list:

1. Investigation and report on sewage disposal at Camp Kearny in May, 1917.

This investigation was made at the request of the officer in charge of construction before the camp site had been finally selected, and the site was still heavily covered with underbrush so that inspection had to be made on horseback. A preliminary report was submitted to the quartermaster and to the civilian engineer selected to design the works. The type of plant and disposal site were considered in detail from a viewpoint of the local needs. In this advice the civilian engineer concurred, but the standard type of plant used by the army elsewhere and ill-adapted to this arid region was later constructed. Subsequently, numerous inspections were made from time to time to aid the officers in the operation of the plant to get the best results possible.

2. Sanitary inspections of water supply, sewage disposal, and garbage disposal of Camp Fremont and vicinity.

These inspections were made just as the camp was being established and were initiated by the bureau with a view to making the zone surrounding the camp safe for the purpose. The work consisted of the ordinary sanitary inspections and as a result a great many dangerous spots, such as overflowing sewers, dangerous water supplies, fly-breeding manure piles, mosquito-breeding holes and the like were abated.

3. *Storage disposal of Mather Field, Sacramento, California.*

Preliminary inspection was made of the site of this camp immediately after its selection at the request of the constructing officer. All things considered, a disposal was advised, including a pumping chamber, Imhoff tank and sewer farm. There was some objection to using a sewer farm and later an intermittent sand filtration plant was substituted for the land disposal. The bureau co-operated further in passing on all plans for this work and on the grade of sand that should be selected. Subsequently, when the plant was completed, several inspections were made and recommendations given for improving the operation of the plant and the making of control tests.

4. *A special investigation was made of a proposed water supply to be obtained from the Ravenswood wells on the marsh land of San Francisco Bay for use of Camp Fremont.*

A serious question arose as to whether continued heavy draft on these wells would result in drawing brackish water into the wells. Intensive pumping and sampling were carried on by the bureau and a geological investigation made from which to draw proper conclusions. The army authorities were advised that there was no evidence to show that brackish water need be expected and this supply was subsequently developed.

VENEREAL DISEASES.

One of the most important of advancements in public health that have been made for many years is the general recognition by the public at large of the venereal disease problem as one of public health and a most important one at that. This movement, which has been rendered possible only by the exigencies of the war, has resulted in the formation, under the State Board of Health, of a new bureau, that of Social Hygiene. This work, which had been a dream of Dr. W. A. Sawyer, my predecessor in office, and before him, of Dr. W. F. Snow, was rendered possible of realization by the influence exerted for the attack on these problems by the Secretary of War. California had already been a pioneer to the extent of making venereal diseases reportable in 1909, and the work of both Doctors Snow and Sawyer was paving the way to a more active attack upon the problem of venereal diseases, when the circumstances brought about by the needs of the army rendered possible the immediate inauguration of the work on a scale commensurate with its importance.

The report of the Director of the Bureau of Social Hygiene sets forth in detail the scope of the work which, at the present time, corresponds very closely to that of the United States Public Health Service and of many other states that have established similar bureaus. California was the first state in the Union to finance a bureau for the control of venereal diseases, and its original program, as developed by Doctor Sawyer, has been the basis for much of the work that has followed, both state and national, since that time. Through the influence of the Military Welfare Commission and the quick appreciation of the needs of the situation on the part of Governor Stephens, the sum of \$60,000 was appropriated out of the state's emergency funds for the uses of the bureau, which was created by the State Board of Health in August, 1917.

It is the firm determination of this Department that this work shall not languish with the cessation of the war, but that it shall be continued with the same enthusiasm that has marked the conduct of the work since the organization of the bureau. Although the State Board of Health possesses, under the existing laws, ample power to deal with most phases of the subject of communicable diseases in general and has made very comprehensive regulations for the control of venereal diseases, certain additions are necessary for the prosecution of the work of supervision of these diseases in a satisfactory manner in the future. California's law for the reporting of venereal diseases was early on the statute books, having been passed in 1909, but at the present time reporting is still by number only. Reporting by name is possible under the regulations of the board only under circumstances that can be construed as violations of the quarantine regulations. I believe it to be essential in dealing with venereal diseases that reporting of cases by name be adopted and that there is no reason for treating these diseases in any different manner than the other contagious diseases. There is no reasonable ground for opposition to the reporting of such cases by name because the records of the state in such matters will be absolutely safe from any form of publicity and inaccessible to unauthorized persons. The same objection was raised originally to the reporting of tuberculosis, but such objection is no longer thought of and no grounds for complaint have ever developed during the existence of such reporting. As to the objections to reporting by name that are made by physicians and their fears that the treating of cases will be interfered with and that patients will not come to them, knowing they will be reported, I feel sure these will all prove groundless in practice. The enforcement of reporting by physicians will be easier in the case of these diseases than in any of the other infections as the tracing of such delinquencies will be so easy that no physician will dare disregard the law. The present system of reporting by number is valueless either for statistical purposes or for control.

Bubonic Plague and Squirrel Eradication.

The continued existence of bubonic plague among ground squirrels of California after ten years of work for their extermination should be a matter of general concern and should prompt us to redouble our efforts to eradicate them. California is definitely on the map as one of the endemic foci of this disease, others being Arabia, Manchuria and Thibet.

The work of squirrel eradication is being carried on by the United States Public Health Service in co-operation with the State Board of Health, and the amount of money being expended in the work averages about sixty thousand dollars per year, less than half of which is contributed by the state through funds appropriated to the State Board of Health. The work is carried on by intensive poisoning operations in those localities shown to be plague infected. This is determined by sending hunters over the area under investigation, examining in the laboratory the squirrels shot and concentrating poisoning operations in the places found to be infected. This method is made necessary by reason of the lack of funds to carry on more extensive work. In November, 1917, the service surrendered charge of eradication work in Merced,

Stanislaus, San Benito and Monterey counties to the State Horticultural Commission and has since confined its operations to the counties of Contra Costa, Alameda and San Mateo. Plague-infected squirrels were found in the latter group of counties which surround the bay of San Francisco, on which is located the city of San Francisco and which was the scene of a human plague epidemic in 1907.

Until plague-infected ground squirrels are entirely eradicated from California we shall always have a sword of Damocles hanging over our heads. So long as infection persists among the ground squirrels the possibility of an extension of the disease to the rats of the cities and consequently to the human population will exist. It may be one year, it may be five years, or it may be twenty years before this lighting up of the virulence of the infection will occur, but we can surmise from the world history of plague and from its known tendency to slumber in endemic foci, such as we have in the vicinity of San Francisco Bay, that this will happen some time. We have now had a fair trial of the present method, extending over ten years, which is to spend just enough money to keep the disease in check but not enough to exterminate it. The only rational plan is to proceed vigorously and to prosecute the work at such a rate that an entire ten years' allotment of funds is used up in a year or two. A reasonable basis would require an outlay of not less than two hundred and fifty thousand dollars per year with the expectation that two years would finish the work.

Child Hygiene.

The urgent need for the giving of special attention to the children in public health matters has been recognized by a number of states and larger cities by the inauguration of bureaus for the conduct of this work.

It remained for the results of the army medical examination to impress in a manner that can not be misunderstood the urgent need for early health supervision as a safeguard against the many preventable defects known to exist among the children of all ages.

The place to begin anything is at the beginning and no argument should be necessary to establish as a fact the importance of recognizing this as fundamental in the work of saving and prolonging life and bettering health and the consequent enjoyment of life. It has been said, and truthfully, that "the nation marches forward on the feet of little children." To begin at the beginning in public health work we must therefore go further back than the child in school—not that medical supervision of school children is not of vast importance. We must go further back than the child of pre-school age, although help extended to the mother in the rearing of her children is repaid a hundredfold in the increased health and vitality of the new generation. We must, in fact, go back beyond the period of infancy and recognize the supreme importance of prenatal instruction of mothers, and its marked influence upon the mortality, not only of the expected child, but of the expectant mother.

It is a very serious matter that the statistics of maternal mortality in the United States show a death rate from disease and conditions incident to childbirth for the age group of 15 to 44 years of 68.4 per hundred thousand. (Dublin, Amer. Jour. of Obs. and Dis. of Women and

Children, Vol. LXXVIII, No. 1, 1918.) This frightful mortality among the motherhood of America is comparable to the losses in figures of percentage of the American army in the trenches of France.

The preventable deaths among children under five years of age reach a figure far in excess of the mortality from wounds received by our soldiers in Europe. These statements will serve to draw attention to the urgent need of California taking steps to stem the tide of needless deaths by establishing under the State Board of Health a Bureau of Child Hygiene.

Such a bureau would disseminate information on prenatal care, through its own public health nurses and through the stimulus of local attention to such work which would surely follow the initiation of the work by the state. Educational literature on this and related subjects of infant care and feeding and the hygiene of the child of pre-school age would be distributed.

Better birth registration should and would be stimulated by the bureau. The employment by communities of public health nurses would, by example and demonstration of their possibilities for good, become common. The public health nurse is, next to the full-time and properly trained health officer, the most important agent in the efficient administration of public health in any community.

The influence of the bureau would be exercised in such matters as the local establishment and maintenance of infant welfare stations, the provision of nursing and obstetrical care for mothers; the establishment of summer camps for children; the holding of child welfare exhibits; the introduction of little mothers' classes into the schools; lectures to women, etc. These matters are all so intimately related to public health in general that work in child hygiene by the state can not be, without injury to the cause, placed under any department except the State Board of Health. Ten states have so far established bureaus of child hygiene, in each instance under the supervision of the state health department. New York City pioneered the way in this important work and the figures showing their results on the infantile death rate are interesting. The division was established in 1908, at which time the infant mortality rate was 144 per thousand living births per annum. In three years the rate had been reduced to 120, in two years more to 102, and in 1914 it was 94 per thousand.

The provision of a bureau of child hygiene by the legislature to be administered by the State Board of Health is an urgent necessity and will be a forward step calculated to keep California in the front rank of those states exhibiting an enlightened and progressive policy in public health affairs.

Smallpox.

A study of the chart on page 39 will show at a glance the fact that smallpox is on the increase in California. The chart shows by cumulative curves the rate of increase of the cases in 1918 (solid line) and the rate reduced to a yearly average for the years 1913 to 1917 (dotted line). The increased prevalence of smallpox is very striking and is a matter of concern to the board.

Smallpox is one of those diseases for which we possess the knowledge that would enable us to stamp it out entirely could we be permitted

to put into practice the measures that have proven to be effective. It is a curious commentary on the public health attitude of a portion of our citizenry that with those diseases, the mysteries of which have not yet been fathomed, we are criticized for not adopting stringent measures and thus stamping them out, while in the case of a disease, such as smallpox, where we have the means of stamping it out (vaccination) we are prevented from putting it into practice on a scale and in a manner that would have the desired effect. Indeed, we are sure to be subjected to harsh criticism if we attempt to strengthen the regulations governing its application. Increased prevalence of smallpox is undoubtedly due to the neglect of vaccination, which, in turn, is due to apathy and lack of familiarity with the disease which always follows a long period of comparative immunity. The insidious nature of the present extension of infection in the population of California is well exemplified by the following extracts from a report of one of our district health officers concerning his experiences with unrecognized cases in a group of towns in the Bay region:

"Upon request of the health officer of Napa to aid him in verifying a diagnosis of smallpox, I visited that city, saw the patient, and found him to be sick with a discreet smallpox of severe type. On questioning this man I learned that he had been in bed in the Vallejo General Hospital between the fifth and nineteenth of the month. Upon visiting the Vallejo General Hospital I found that during the period of residence of the Napa case in the hospital a patient had been admitted with a diagnosis of 'grippe,' but upon the subsidence of his fever he had developed a rash and the hospital authorities discharged him with a diagnosis of 'chickenpox.' This case exposed a number of people, as he was not recognized as a case of smallpox and did not consult a physician. Besides this man I found four people in the hospital sick with smallpox of a mild type, and one other person in the town, making a total of six cases in all discovered the first day. I immediately placed in force the usual smallpox regulations, obtained the assistance of the physicians of the town, and the physicians from the Naval Station at Mare Island and secured the vaccination of over one thousand previously unvaccinated children in the schools. Many hundred vaccinations were done by physicians in their private offices and as the original Vallejo case had been employed in one of the shops on Mare Island and had visited the island while the crustation was still active, the authorities there vaccinated several thousand of their workmen. Nine other cases ultimately developed in Vallejo, contacts of the men who walked the streets, or with the cases in the hospital before quarantine was established. The physician who attended the original Vallejo case, never having been vaccinated, developed a severe case of smallpox which was confluent on the face. Eight cases developed in Benicia, a neighboring town eight miles away, traced to Vallejo as the source. The epidemic here was handled by the local health officer in an energetic manner. I then visited Martinez, across the straits from Benicia, where I was informed by the health officer that although there was no smallpox present, there had been prevailing an odd type of chickenpox. None of these were in the active stage at that time, but he thought there were some cases still in Crockett, an adjoining town. Crockett was next visited and the result of my investigations

there disclosed the fact that mild cases of smallpox, which had been mistaken for chickenpox, had been occurring for some time. One case of smallpox in the pustular stage was found in the hotel, which had never been reported as smallpox. A visit to the schools disclosed three children in the classrooms in the crusting stage of smallpox. Many children in the schools showed pock marks and staining indicating a recent recovery from smallpox. Cases were discovered in ten houses in the town which were placed under quarantine. An active campaign of vaccination was immediately commenced, one hundred or more people in the hotel being vaccinated during the first two days. The employees of the sugar refinery, some fifteen hundred in number, were vaccinated, as were a large part of the school population, a total of about twenty-five hundred vaccinations in all being performed."

Other similar instances have been uncovered by the district health officers and there is no doubt that had we a larger force of district health officers at our disposal similar conditions would be found in many parts of the state. It is to be hoped that the intensive campaign against smallpox, which is now being carried on by the board, will result in a more complete vaccination of the population of the state, with a consequent reduction in the chances of infection from this wholly preventable disease.

Typhoid Fever.

A perusal of the report of the Director of the Bureau of Sanitary Engineering, which will be found in another part of this report, will show clearly the remarkable results that are being achieved in reducing to the irreducible minimum the prevalence of typhoid fever in the state. The loss to the community is not to be reckoned only in terms of loss of life. Typhoid is a long continued fever that incapacitates its victim for many weeks and occasions a burden of expense that can be ill borne by most of those attacked.

The director of the bureau, in his report, estimates that the reduction obtained during the period of four years since the organization of the bureau amounts to 280 deaths, 3,000 cases, and a monetary saving to the people who have been spared this infliction amounts to \$1,400,000. This reduction in the typhoid rate has been accomplished largely through the activities of the Bureau of Sanitary Engineering, which is at present handicapped by an insufficient appropriation. It is to be hoped that the next legislature will increase the present allowance of \$45,000 for the biennial period so as to permit of the employment of two additional engineers and one bacteriologist. The public funds can be invested in no more profitable manner than in the expansion of this most important department.

WILFRED H. KELLOGG, M. D.,
Secretary and Executive Officer.

REPORT OF THE BUREAU OF ADMINISTRATION.

WORK OF STATE DISTRICT HEALTH OFFICERS.

Northern District.

HAROLD F. GRAY, Gr. P. H., District Health Officer, Chico.

Two hundred and two visits to towns have been made. There were 104 calls on local health officers, 41 calls on local registrars, 106 calls on other county and city officials, and 57 calls on physicians. No record was kept of the number of individual premises inspected within towns. Forty-seven special investigations of diseases were made, as well as 21 other special investigations, one complete municipal survey and two birth registration checks; 17 lectures and demonstrations were given, and there were 15 conferences with boards of supervisors, trustees, etc.

The first work undertaken was to cover the entire territory rapidly, to become acquainted with the local health officers, and become acquainted with the main problems of the district. An office system was then organized to make possible the follow-up of conditions in the district, with a minimum of clerical detail.

Considerable time has been given to organizing preventive and remedial measures against venereal disease, in co-operation with the Bureau of Social Hygiene.

Much attention has been given to improving birth and death registration; substantial improvement has been obtained in many communities.

A survey of the pollution of the upper Sacramento River was made in co-operation with the Bureau of Sanitary Engineering, and a public health survey has been made of Marysville. A birth registration check was made in Willows.

The principal work in the district has been, however, the instruction of local health officers in their duties, in the endeavor to bring about on their part more effective enforcement of health laws.

North Coast District.

ALLEN F. GILLIHAN, M.D., District Health Officer, Santa Rosa.

The district originally included eight counties: Del Norte, Humboldt, Mendocino, Lake, Napa, Sonoma, Solano and Marin. Trinity was added on September 20, 1917, and since that date the North Coast District has comprised these nine counties. With San Francisco Bay on the south, Oregon state line on the north, the Coast Range on the east, and the Pacific Ocean on the west, a narrow strip is formed about 300 miles in length by about 50 to 60 miles in width, which includes over 16,000 square miles of territory, and contains a population of about a quarter of a million. The largest cities are Santa Rosa and Eureka, each having a population of less than fifteen thousand. The general line of travel is north and south, either by Northwestern Pacific Railroad, or on coastwise steamers. Practically no communication is maintained with the counties to the east, the Coast Range serving as a barrier. The few roads across the mountains are very poor, and have very heavy grades.

DISTRICT HEALTH OFFICER.

As District Health Officer, I have endeavored to familiarize myself with conditions generally throughout the district, and especially with its health problems. I have visited every incorporated town, in some instances many times; I have visited nearly all the unincorporated settlements. I have made myself familiar with the geographic distribution of population; the watersheds and their relation to population and travel; the products, manufactures, and distribution of labor; and have visited a great many schools. I have made the acquaintance of health officers and local registrars throughout the district, and have assisted in solving many of their local problems. In personally visiting local health officers I have discovered many errors both of omission and commission, due, almost invariably, to misunderstanding regulations. These errors have been easily corrected, and the good will of the official retained, and later when other problems have arisen I have been called in to assist in their solution. As a result health officers in this district are now more prompt in forwarding their weekly reports, they pay closer attention to the immediate registration of all births, and are more active in reporting violations of state health laws.

INSTRUCTION TO HEALTH OFFICERS.

I have endeavored to visit each newly appointed health officer as soon after his appointment as I could conveniently do so, for the purpose of instructing him in the duties of his office. Besides health officers, I have visited town councils, school trustees, boards of supervisors and others, and a much closer co-operation has been established between these various officials and the different bureaus of the State Board of Health than could have been possible from a central office only.

HEALTH EDUCATION.

Many lectures have been delivered before schools, teachers' institutes, and the public generally, covering such subjects as communicable diseases and their control, the importance of complete birth registration, the conservation of infant and child life, and sanitation in rural communities. Much literature has been distributed after these lectures, particularly State Board of Health Bulletins.

SPECIAL INVESTIGATIONS.

Many special problems have been investigated; among the most important may be noted a sharp epidemic of diphtheria in Willits; typhoid on watershed of town of Elk, due to a carrier; 30 cases of chickenpox, German measles, and scarlet fever in Kelseyville; scarlet fever outbreak in Hopland; scarlet fever in Sonoma County; sanitation of summer camps along the Russian River; nuisance on Richardson's Bay due to waste from Mason Distillery; with Mrs. Tate-Thompson assisted in organizing five counties for joint sanitarium for care of tuberculous. In many instances co-operation with various bureaus has been of great value in obtaining results, for example, with the Bureau of Sanitary Engineering of State Board of Health, water supply of Santa Rosa, sewage disposal of Sonoma State Home at Eldridge, sewage disposal of Veterans' Home at Yountville, sewage disposal town of

Ukiah, water supply of Dillon's Beach Resort. In co-operation with the United States Shipping Board Emergency Fleet Corporation, State Housing Commission, and Bureau of Sanitary Engineering, the housing problem, the sanitation of food establishments, and the sewage disposal of the town of Benicia have occupied considerable attention.

CORRESPONDENCE.

Besides personal field investigation, much has been accomplished through office correspondence. Many letters have been written during the year to health officers, school trustees, town councils, physicians and private individuals, regarding the reporting of communicable disease, registration of individual births, violation of public health act and vital statistics law, enforcing common towel law, sterilization of drinking receptacles and other acts, the abatement of nuisances and many other problems.

Summary of Operations.

Incorporated towns visited	43
Number of visits made	123
Settlements and villages visited	23
Number of visits made	27
Miles traveled in automobile (10 months)	6,911
Special lectures and talks given	21
Grammar schools visited	19
High schools visited	7
Special investigations, communicable disease	24
Special investigations, sanitation and nuisances	29
Weekly reports filed	45
Special reports filed	50
Other interdepartmental communications	146
Letters, general correspondence	388
Circular letters to health officers, physicians, etc.	225

Central Coast District.

ROBERT N. HOYT, District Health Officer.

The sanitation of the zone surrounding Camp Fremont, thirty miles south of San Francisco, was one of the chief health problems in the Central Coast district. The Division Surgeon at the camp wished to know the number of cases of communicable diseases occurring from week to week in the towns and country districts in the vicinity and such reports were secured for him. In return he furnished reports of communicable diseases and the sources so far as known for all cases discovered among the troops.

The dairies supplying milk to Camp Fremont and the pasteurization plants were inspected and the conditions found reported to the Division Surgeon. In one case where unclean conditions at the dairy were found and the proprietor was unwilling to follow my recommendations, the milk was excluded by the camp authorities until the dairy was put into sanitary condition. At the request of the Division Surgeon, I took blood specimens from the men employed in the pasteurization plants in order to discover typhoid germ carriers. The blood tests were followed up with examination of excreta. No carriers were found. For several months complete sets of samples of milk were taken from the trucks while delivering in the camp and the analyses were reported to the Division Surgeon. There was evidently a general spirit of willingness

to make needed improvements on the part of those handling the camp milk.

The village of Menlo Park, at which Camp Fremont is located, is not incorporated and had no local health authorities. There was no system of garbage removal. With the building of the camp, there was a sudden influx of tradespeople. Restaurants, soda fountains and pool parlors sprung up by the dozen. The proprietors felt uncertain as to the permanency of the camp and started to do business without sufficient toilet or other sanitary facilities. The Division Surgeon agreed to joint inspections of food and other establishments and the co-operation of the army and State Board of Health secured sanitary conditions which might be copied with advantage by many cities. State Sanitary Inspector Edward Ross spent much time on this work and deserves much credit for the results. I arranged for regular garbage collections and obtained the assistance of two special deputy sheriffs in cleaning up the back yards and vacant lots.

The greatest need in health matters appeared to be for a public health nurse who could keep in touch with the school children and head off outbreaks of communicable diseases. Mrs. Nina Carson was appointed by the State Board of Health on June 15 to do this work. The county and local school authorities showed interest in the work and agreed to co-operate.

The venereal disease problem required much of my time. At Camp Fremont, I obtained the weekly reports of cases and sources of infection and co-operated with the camp authorities and the State Bureau of Social Hygiene in protective work for the soldiers. At times when special problems came up, I arranged for conferences of the state and county officials. In this way the methods of diagnosis and treatment of prostitutes convicted of plying their trade near Camp Fremont was arranged and the fitting out of a detention hospital at Redwood City hastened.

The surgeon at the Monterey Presidio complained of sources of infection affecting the men in his charge. The local officials secured the apprehension of a considerable number of prostitutes who were examined by an expert from the Bureau of Social Hygiene.

Many special problems required attention. At Alameda City a study of a scarlet fever outbreak showed the need for the employment of an inspector who could trace the sources of infection and supervise isolation and other control measures. The city health officer and the city manager appreciated the need and a very competent "health visitor" was secured through the good offices of Professor Force of the University of California.

A scarlet fever outbreak among the children in the school of the small town of Rodeo in Contra Costa County gave an opportunity to demonstrate modern methods of controlling this disease. The school trustees were persuaded to open the school and provide a public health nurse to follow up the examinations which the county health officer promised to make. Four light cases were discovered among the absentees from school and among those actually in attendance. In addition to controlling the outbreak a very interesting health survey of the children was made by the nurse. As a result many parents arranged to have dental or other care given their children.

The problem of sewage disposal for bathing in the San Lorenzo River in Santa Cruz County was studied. The data obtained was given to the Bureau of Sanitary Engineering of the State Board of Health.

At a summer resort, Twin Lakes, the faulty sewage disposal of a hotel and group of cottages was corrected.

In many other cases, I acted as connecting link between the experts of the State Bureau of Sanitary Engineering and local problems.

Requests for assistance came frequently from local health officers. Some health officers did not feel well enough equipped to handle epidemics or other problems but most often the need was for backing. The lot of a part-time health officer in a small community is hard. His actions are resented because of his personal relations with those with whom he deals. In many cases the mere word of a state official that certain sanitary action was necessary secured prompt compliance which had been refused the local health officer. A demand for vaccination of those exposed to smallpox was an example of this.

The improvement of local health organization is, to my mind, the greatest field for useful service of the state district health officers. Six men can do little of themselves in solving the state health problems. It is chiefly by building up a foundation of efficient town and county health work that we can secure the greatest results. In Alameda and Santa Clara counties, I assisted groups of towns and rural school districts in studying and planning for "local health districts" as provided for in the laws of 1917. In neither of these cases did successful formation of the district seem very certain but the interest in better health protection which was aroused will surely bear results. At the city of San Luis Obispo I spoke, with Miss Cole, superintendent of the Santa Barbara District Nursing Association, to an audience in the local moving picture theater on the value of a public health nurse. A committee was formed to secure an appropriation from the county for the employment of a county nurse.

Among the educational work which I was asked to perform, were papers at the State Conference of Municipalities at Santa Rosa and the State Conference of Social Agencies at Santa Barbara. I also gave illustrated talks on child hygiene at public schools, grange and improvement association meetings in Santa Clara County.

The State Board of Health recognized the need for more public health workers and gave me permission to assist Professor Force of the University of California in conducting a field course for advanced students in public hygiene. I was accordingly appointed Lecturer in Public Hygiene without pay by the university. Fifteen students were given instruction in the administration of public health work and were then supervised in making surveys of the health problems and health machinery in various cities and towns. In one case the student was added by the city she surveyed to its permanent health department.

Central District.

R. W. NAUSS, M.D., District Health Officer, Fresno.

The first six weeks following my report for duty as health officer for the Central District, were spent either at Berkeley or in Amador County, going to assist the newly-constituted Division of Biology (Bureau of Communicable Diseases) in the taking over and continuance

of our hookworm control work among miners. This relieved me of any direct personal responsibility for the conduct of field activities in the collection of diagnostic material and treatment of infected cases. I did, however, from time to time, during the year, aid various representatives of the Division of Biology in the planning for and conduct of the work.

The underground sanitation in ten mines was investigated in this connection and the Division of Biology was kept informed as to my findings as compared with the results of similar surveys made by myself last year.

On October 1, I established headquarters in the City Hall, Fresno, upon the gracious invitation of Mayor Toomey, secured through the kindly efforts of the newly-appointed city health officer, Dr. C. Mathewson. The three following months were largely devoted to making the acquaintance of my local health officers and familiarizing myself with the territory of the Central District. These first essentials were accomplished by means of systematic touring, during which time various matters which had already been referred to me, were inquired into or investigated as occasion required.

During the winter months, beginning with December, in addition to the more or less routine work in the office and field, considerable time was devoted to the creation of clinics in Fresno and Stockton, in which the venereal diseases could be adequately and effectively treated in accordance with regulation laid down by our board.

The Fresno Health Department, through the persistent activities of its health officer and others, succeeded in securing a special appropriation of \$3,000 for the equipment of a laboratory and clinic rooms in the City Hall and the salaries of a full-time bacteriologist and day and night nurses in addition. Thus far, our efforts in Stockton have not materialized completely. The local chapter of the Red Cross has definitely pledged \$1,000, providing the city trustees and county supervisors would each, as a body, give \$1,000. Owing to curtailment of city finances, resulting from decreased liquor revenues following the abolishment of saloons this year, the city trustees could not see their way clear to meet this offer of the Red Cross, but have definitely pledged themselves to make provision for an adequate appropriation when the new yearly budget shall be made up in December. The county supervisors appear to be willing to duplicate the appropriation to be made for this purpose by the city.

Advice and assistance were also, during the winter and early spring, given to the Women's Committee on Public Health, Kings County Council of Defense, in the furtherance of a systematic campaign directed specifically toward the establishment of a local health district, comprising the whole of Kings County. The petition, largely over-subscribed, was most ably presented to the county board of supervisors, the only dissenting voice raised being that of the incumbent county health officer. It may be said in this connection that local dissatisfaction over decisions of our board regarding the permissions granted to the municipalities of Reedley and Kingsburg, respecting the discharge into the Kings River of effluents from septic tanks, considered to be reasonably safe under the conditions imposed, was taken advantage of to defeat the object of the petition, both before the Hanford city trustees and the Kings County board of supervisors. It should, however, be remarked that the Women's Committee was disappointed but

not discouraged. The matter will probably be brought up again next year.

The importance of the reporting of births and communicable diseases was constantly emphasized and urged upon those personally responsible for doing the same. The children's year campaign is proving to be a great stimulus towards the improvement of birth registration. The objections of physicians regarding reporting generally, should, in my opinion, be more insistently emphasized.

Frequent calls for assistance from various parts of my district, in the differential diagnosis of German measles and scarlet fever on one hand and chickenpox and smallpox on the other, were responded to. The control of smallpox in Porterville was conducted under my direction. Control of the same disease among Indians in Madera County was also conducted under my personal supervision through a specially-appointed deputy county health officer. Failure in the control of diphtheria in and about San Andreas and Paloma, in Calaveras County, was investigated and difficulties arising therefrom adjusted.

Work done by our bureaus of Communicable Diseases and Engineering, in the control of the typhoid outbreak at Merced Falls, was followed up by a personal visit. Another outbreak of typhoid, consisting of six cases, occurring among student laborers on a ranch near Corcoran, Kings County, was investigated and the probable origin traced to what seemed to have been a carrier or ambulatory case, confirmation of which has not yet been secured. The perplexing question of endemic typhoid was, and is still, kept constantly in mind. Thus far my conclusion is that the insanitary privy, and the fly acting in partnership with a third party—the "typhoid carrier," are responsible for most of our rural endemic typhoid. Excellent means of transportation and the periodic demands for agricultural labor tend constantly to keep the labor element, much of which is foreign, moving from place to place. Too little attention is paid to this class of our population which is so extremely important in the control and prevention of spread of communicable diseases generally.

As soon as travel in the Sierras became practicable in May, a number of special mountain trips were made. Among these was a visit into the Yosemite Valley in order to acquaint myself with camp sanitation and possible stream pollution.

Special assistance was given our Registrar of Vital Statistics in the making of readjustments in the subdistricting of Fresno County. The practical working out of the new plan was inquired about at various places and a variety of opinions as to its practicability were given me. A great deal depends on the interest and pride in the work manifested by the local registrars.

South Coast District.

E. A. INGHAM, State Health Officer, Los Angeles.

Dr. Edwin D. Ward entered upon his duties as health officer for the South Coast District on August 1, 1917, and took charge of the establishment of the southern branch office of the State Board of Health. A considerable amount of work was done in connection with sanitary conditions surrounding the various military camps in the district and in connection with the control of communicable diseases in the neighborhood of these camps. A preliminary investigation of the mosquito

situation in the district between Long Beach and Wilmington was made and of the sanitation of canneries in the same district. Dr. Ward took an active part in the work for the establishment of an isolation hospital for venereal diseases in Los Angeles and co-operated with the Bureau of Venereal Diseases to a very large extent in making investigations and furnishing information in regard to the venereal disease situation throughout the district. He also made investigations of the reporting of vital statistics to the local registrars and worked to stimulate the complete reporting of births to these local authorities. Some time was spent in work for the formation of local health districts around Pomona, Pasadena, Santa Ana, San Diego and Santa Barbara. These districts have not yet been organized on account of local jealousies and on account of the difficulty of obtaining suitably trained health officers at the present time. Dr. Ward co-operated with the various health officers in investigations of sanitary conditions which could not be satisfactorily handled by the local authorities. He also assisted the local health officers in suspected cases of contagious diseases. The following epidemics were investigated:

Typhoid: Hollywood and Santa Paula.

Diphtheria: San Dimas and Venice.

Smallpox: Nordhoff.

Meningitis: San Diego.

On April 1, 1918, Dr. Ward resigned and Mr. E. A. Ingham, health officer of the Southern District, was placed in charge of the South Coast District. Mr. Ingham transferred his headquarters to Los Angeles on May 1, but remained in charge of the Southern District until June 12. Among the work which he took up were the investigation of an epidemic of diphtheria at Huntington Park which resulted from an infected milk supply. The investigation of an outbreak of dysentery at Santa Ana and of typhoid at National City was also made. Routine visits were made to a considerable number of cities in the district with a view to the compilation of data in regard to public health conditions. During the eleven months from August 1, 1917, to June 30, 1918, thirty-four cities were visited by the district health officer.

Southern District.

E. A. INGHAM, State Health Officer, Los Angeles.

From August 1 to September 15 the Southern District was under the supervision of Dr. E. D. Ward, Health Officer of the South Coast District. During this period investigations were made of a case of typhus reported at Perris and of a small outbreak of typhoid near Hemet.

On September 15 I took up the duties of state health officer for the Southern District, but owing to the lack of office facilities at Riverside the headquarters for this district remained at Los Angeles until December 1, when it was moved to the Riverside County Courthouse. Following the resignation of Dr. Ward on April 1, 1918, I was transferred to the South Coast District and on May 1 moved my headquarters to Los Angeles, but remained in charge of the Southern District until the work there was taken over by Dr. Telfer on June 12.

In taking up the work it was necessary to devote a considerable amount of time to studying general conditions in the district and to becoming acquainted with the local health authorities in order that it might be possible to devote particular attention to the places which were in the worst condition and especially to those which seemed capable of improvement if their energies were properly directed. For this reason a considerable amount of time was spent in the collection and compilation of data on health conditions and health administration in the district.

If appears that one of the main functions, if not the chief function, of a district health officer, is the stimulation and education of the local health authorities to the point where they can handle local conditions properly without appealing to the state for aid. Coupled with this must be the education of the public at large to the point where they will appropriate enough money to properly support the work. For this reason much time has been devoted to making the acquaintance of municipal authorities, practicing physicians, and various persons who were especially interested in public health; and in the preparation of articles for publication in local newspapers.

In addition it has been necessary to spend some time in the investigation and control of epidemics and in the control of nuisances in the Southern District. Following is a summary of the work done during the nine months from September 15, 1917, to June 12, 1918: Cities visited, 22 out of 29 in the district. Surveys: Blythe, general sanitary; San Bernardino, hygiene and sanitation of schools; Hemet, contagious disease situation in the schools; Riverside, contagious disease situation in the schools. Epidemics investigated: typhoid—Blythe, Palo Verde Valley, Hemet; smallpox—Brawley, Blythe, Ontario; dysentery—Colton. Public addresses: County Medical societies of Kern, Riverside and Imperial counties; Southern California Organization of Public Health Nurses; Riverside Women's Clubs; State Council of Social Agencies; State Conference of Health Officers.

In addition I have co-operated with various bureaus and state officials, where we could be of mutual service to each other, as follows:

Bureau of Communicable Diseases in supervising the establishment and proper maintenance of depositories for diagnostic outfits; Epidemiologist in investigations of typhoid at Blythe and smallpox at Ontario; Consulting Parasitologist with advice on proposed mosquito abatement district at Riverside; Bureau of Tuberculosis in connection with hospital facilities in Riverside County and Imperial County; Bureau of Venereal Disease with investigations of conditions in Imperial County, investigation at Blythe, and arrangements for the introduction of their work at Riverside; minor reports issued on venereal disease situation in Bakersfield, San Bernardino, Colton, Elsinore and Perris; Bureau of Vital Statistics in formation of local registration districts in Riverside County; Bureau of Sanitary Engineering in reports on conditions at Blythe, Riverside, Cabazon, Hemet and March Field. I have further co-operated with the Commission on Immigration and Housing in regard to matters of camp sanitation at camp _____ and elsewhere and with the nurses of the State Board of _____ in work along the line of children's aid.

SANITARY INSPECTIONS.

For the Biennial Period From July 1, 1916, to June 30, 1918.

EDWARD T. ROSS, State Sanitary Inspector.

During the biennial period ending June 30, 1918, a number of sanitary surveys were made of cities and towns throughout the state. These surveys covered the inspection of food supply places, restaurants, ice cream and soft drink stands, creameries and dairies, meat markets, slaughterhouses, hotels, lodging houses, factories, canneries, meat and fish packing houses, stables, public schools, hospitals, sanitariums, theaters, laundries, barber shops, etc. In a number of cases the water supplies and sewerage systems were also inspected. Sanitary surveys were also made of a number of summer resorts, farm camps, and of all ferry and river steamers plying between San Francisco and bay and river points. Three campaigns were undertaken for the control of typhoid fever, rabies and malaria. Extensive clean-up operations were undertaken in the extra cantonment zone at Camp Fremont and in the territory surrounding the shipbuilding yards in Los Angeles and Long Beach. As a result of these operations over 14,800 inspections and reinspections of premises were made and over 10,470 nuisances were abated.

During the month of August, 1916, a campaign was waged in the West Side-Sunset oil fields, Kern County, to prevent the spread of typhoid fever. The area covered during this campaign was approximately 12 miles wide and 24 miles long, including the towns of Maricopa, Taft, Fellows, McKittrick and all camps and leases. The fullest co-operation was received from the county board of supervisors, also from the boards of trustees of the various towns and from the citizens in general in carrying on the work.

Summary of Operations.

Inspections and reinspections.....	4,418
Nuisances abated	6,365
New garbage cans procured.....	1,055
Yards cleaned	1,571
Vacant lots cleaned.....	301
Streets and alleyways cleaned (approximate blocks)	105
Loads of rubbish removed.....	798
Toilets screened and made fly-tight.....	2,125
Old toilets demolished.....	243
New toilets provided.....	223
New toilet vaults provided.....	506
Old toilet vaults filled in.....	440
New cesspools provided.....	21
Garbage burners installed.....	148
Chicken yards cleaned.....	53
Stables cleaned.....	34
Bunkhouses cleaned	58
Cookhouses screened	6
Notices served	281
Water samples collected (found O. K.)	9
Miscellaneous nuisances abated.....	96

SUMMER RESORTS.

Over 60 summer resorts located in various parts of the state were inspected. Insanitary conditions were found to exist in practically all of them, due to accumulations of garbage, rubbish, manure, etc., forming breeding places for flies. In a number of instances the sewage was discharging into lakes or mountain streams. A later inspection made of these resorts, showed that practically all improvements recommended had been made and that over 300 nuisances were abated.

FARM CAMPS.

During the months of January and February, 1917, over 70 farm camps located in the delta region west of Stockton were inspected. Numerous insanitary conditions were found in all camps visited, due in the majority of cases to the dilapidated and filthy condition of out-houses and accumulations of garbage and filth. Instructions were given the owners for the abatement of all nuisances existing in their premises. A later inspection made of a number of these camps showed that numerous improvements had been made, resulting in the abatement of over 350 nuisances.

FERRYBOATS AND RIVER STEAMERS.

In the month of April, 1917, all ferry steamers plying between San Francisco, Oakland, Alameda, Richmond, Tiburon and Sausalito, and all river steamers plying between San Francisco, Sacramento, Stockton and up-river points were inspected. The ferry steamers in general were found to be in excellent sanitary condition. On a number of the river steamers the crew's mess space, galley and toilets were not properly enclosed or screened against flies, and in many instances the crew's forecastles were lacking in proper light and ventilation and the wooden bunks were in dilapidated condition. The owners of these steamers willingly complied with recommendations made for the improvement of sanitary conditions. A reinspection of these steamers showed that the crew's mess spaces, galleys and toilets had been screened, sanitary drinking fountains or individual paper cups provided, crew's forecastles cleaned and ventilated and steel bunks installed. Over 200 nuisances were abated.

Summary of Operations.

Ferry steamers inspected.....	21
River steamers inspected.....	36
Crew's mess spaces screened.....	43
Galleys screened.....	31
Toilets screened.....	39
Sanitary drinking fountains installed.....	37
Crew's forecastle cleaned and ventilated.....	18
Steel bunks installed.....	00
Nuisances abated.....	210

RABIES CAMPAIGN.

During the later part of 1916, rabies were reported to be prevalent in various parts of Siskiyou County. An investigation was made in February, 1917, in order to ascertain the extent of the territory involved. The investigation showed that 10 positive cases of rabies

as well as a number of suspected cases had occurred in the county within a few months previous to the time of the investigation. At the request of the local authorities and as a result of the investigation, the State Board of Health placed a quarantine on the county. A campaign was organized and waged under the direction of the sanitary inspector, against the spread of the disease. The board of supervisors of the county passed an ordinance requiring a license to be paid on all dogs in the county, and another ordinance authorizing the payment of \$2.50 on each coyote scalp taken in the county. They also authorized the county health officer to employ five deputies to assist in the enforcement of the quarantine regulations and the extermination of coyotes; also to purchase poison for the extermination of coyotes and for free distribution to responsible citizens who desired to assist in the work by placing the same about their ranches and cattle ranges. The United States Biological Survey Service, at our request, placed one foreman and five trappers with equipment in the field. Invaluable assistance was received from the United States Forest Service in distributing poison, and control work.

Summary of Operations.

Premises visited first inspection.....	1,950
Premises visited second inspection.....	2,338
Premises visited third inspection.....	2,760
Number of dogs killed to August 1, 1917.....	523
Number of cats killed to August 1, 1917.....	63
Number of coyotes and other animals killed to July, 1917.....	159
Number of poison baits placed.....	10,000
Number of ounces poison used.....	65
Positive cases rabies (laboratory examination).....	11
Suspected cases rabies.....	33
Brains sent to laboratory.....	21
Negative cases (laboratory examination).....	10
Men employed—state 1, county 5, biological survey 5.....	11
All employees of the United States Forest Service stationed in the county assisted in the work.	

In the month of April, 1917, an investigation of the rabies situation in Shasta County was undertaken. It was learned that but three positive cases of rabies had occurred in the county during the previous year. As a precautionary measure the board of supervisors passed an ordinance requiring a license to be paid on all dogs kept in the county, and the destruction of all dogs not wearing a license tag.

MOSQUITO ABATEMENT DISTRICT.

During the month of May, 1917, mosquito abatement work was started in the Los Molinos Mosquito Abatement District. Public meetings were held and the citizens were visited in their homes, for the purpose of explaining to them the best methods to be employed in preventing the spread of malaria and the extermination of mosquitoes. The meetings were largely attended and the citizens expressed great interest in the plans outlined for the control work. Practically all of the citizens present at the meetings volunteered at least one day's work, constructing ditches, draining pools, etc., the men providing teams and implements, and the women providing lunches for the workers. Excellent results were obtained by this co-operative work.

Summary of Operations.

Public meetings held	2
Inspections made	531
Pools of water oiled (approximately 1,250,000 square feet)	670
Gallons of oil used	1,800
Permanent ditching of spillways (approximate miles)	23
Nuisances abated	670

Practically all irrigating ditches in the district have been cleaned and placed in good condition.

The period from September 1 to October 31, 1917, was taken up with exhibits of the State Board of Health. During the first part of September the exhibit was at the California State Fair in Sacramento and during the later part of the month was moved to Santa Rosa, for the meeting of the League of California Municipalities. From October 13 to 28 the exhibit was at the Land Show in San Francisco. Thousands of people visited the exhibit and thousands of pieces of literature were distributed. The exhibit was given the blue ribbon at the Land Show.

CAMP FREMONT.

During the months of March, April and May, 1918, a general clean-up of the territory surrounding Camp Fremont was undertaken. Sanitary surveys were made of Menlo Park, Redwood City, San Mateo, Palo Alto, Mayfield, Santa Clara, Mountain View, and San Jose. These surveys covered the inspection of food supply places, restaurants, cafeterias, soft drink and ice cream stands, fruit and vegetable markets, bakeries, grocery stores, creameries, dairies, meat markets, hotels, barber shops, etc. Copies of the state laws and regulations were given to the owners of the various places visited, and without exception all complied with the same. At the time reinspections were made of these places a medical officer from the Division Surgeon's office at Camp Fremont was present, and issued a sanitary certificate to the owners. This certificate indicates that the establishment is approved by the army authorities and permits men in uniform to patronize the place. A number of domestic and business premises in the rural districts were also inspected, and instructions given for the removal of accumulations of manure, garbage, rubbish, etc., in order to eliminate fly-breeding places. In every instance these instructions were willingly complied with. The military authorities at Camp Fremont, also the various city and county officials and the citizens in general co-operated in every way possible in the work.

Summary of Operations (incomplete).

Sanitary surveys (cities)	8
Premises inspected	654
Reinspections made	794
Nuisances abated	1,502
Food supply places complied with state laws	353
Barber shops, etc., complied with state laws	157
Facilities for sterilizing razors installed	123
Facilities for sterilizing glasses in restaurants, ice cream and soft drink stands, etc.	282
Washing facilities provided (food supply places)	278
Metal screened or glass food containers installed	436
Doors and windows screened	352
New floors installed (food supply places)	20

New toilets installed.....	17
Toilets screened and made fly-tight.....	243
Metal garbage receptacles installed.....	391
Insanitary wooden sinks removed.....	76
Metal sinks installed.....	84
Food delivery wagons enclosed.....	30
Food supply places, entire fronts screened or enclosed with glass.....	15
Closets provided for clothes of employees, in food supply places.....	248
Yards cleaned.....	148
Certificates issued (army), food supply places, etc.....	510

SHIPBUILDING YARDS AND ADJOINING TERRITORY.

In the month of June, 1918, sanitary surveys were made of three shipbuilding yards and all food supply places, etc., located in the territory surrounding the same. Two of the shipyards are located in Los Angeles and one in Long Beach. Insanitary conditions were found in all of the shipyards, caused by lack of proper toilet facilities. Improvements will be made at the earliest possible date. Over 50 food supply places, restaurants, ice cream and soft drink stands in the vicinity of the shipyards were inspected. Practically all of these establishments were being operated in small, open wooden shacks, with no effort made to protect foodstuffs from contamination. No plumbing facilities were provided and the yards surrounding the shacks were practically covered with accumulations of garbage and filth. The swarms of flies about these accumulations had free access to the foods, etc., being prepared and served to men employed in the shipyards. Copies of the state laws and regulations were given to the owners, and without exception were complied with. Doors and windows were screened, plumbing facilities installed, facilities for sterilizing glasses, etc., provided, yards cleaned, and covered metal receptacles procured for all garbage, rubbish, etc. A number of fish canneries and packing houses, located in the vicinity of the shipyards, were also inspected. The majority were unscreened and in many of them fly-breeding places were found. The owners willingly complied with recommendations made for the improvement of sanitary conditions. Windows were screened, yards cleaned and covered receptacles provided for all waste matter.

Summary of Operations.

Shipbuilding plants inspected.....	3
Premises inspected (food supply, etc.).....	53
Fish canneries and packing houses.....	23
Miscellaneous premises inspected.....	80
Reinspections made.....	243
Nuisances abated.....	240
Food supply places complied with state law.....	49
Fish canneries complied with state laws.....	21
Facilities for sterilizing glasses, etc., installed.....	33
Metal screened or glass food containers installed.....	51
Doors and windows screened.....	438
New toilets installed.....	31
Toilets screened and made fly-tight.....	77
Metal garbage receptacles provided.....	118
Premises cleaned, yards, etc.....	61

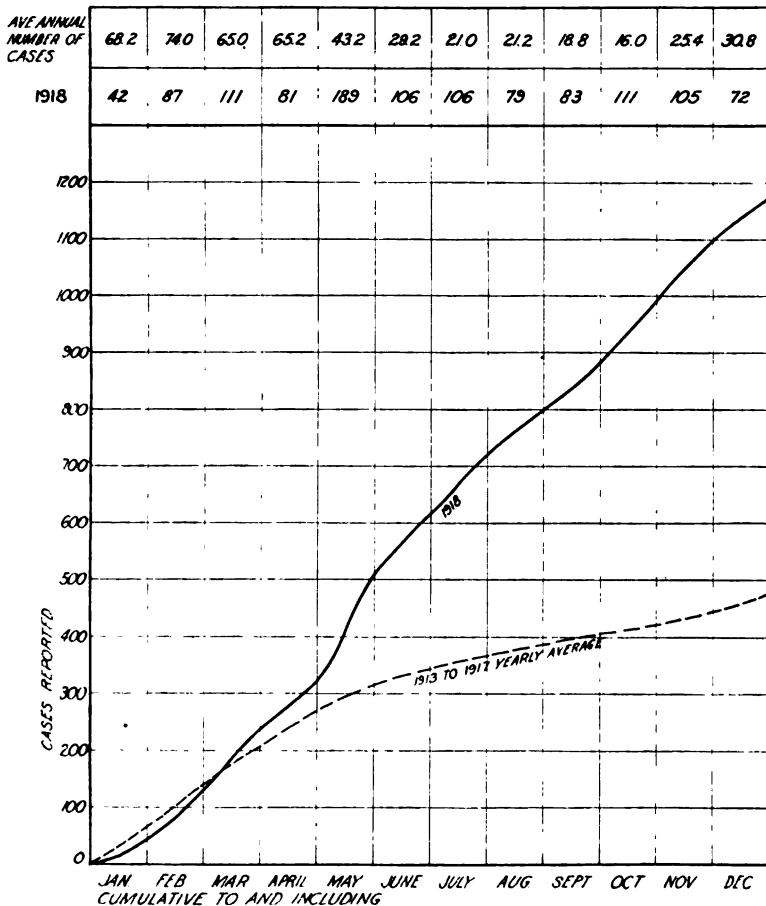
A large area of marsh land in the regions of the shipyards was inspected for mosquito breeding places, and measures were instituted

for mosquito control work. As a result of this work, over two and one-half miles of ditching, and a large amount of oiling was accomplished, which abated the serious mosquito menace to the shipyards.

Summary of Miscellaneous Operations.

	1917	1918	Total
Investigations—			
Rabies	2	3	5
Typhoid fever	1	2	3
Smallpox		1	1
Venereal disease conditions		16	16
Mosquito	1	3	4
Houseboats, above water supplies		4	4
Sanitary surveys (cities and towns)	10	9	19
Public camp grounds inspected	5	3	8
Water supplies inspected	3	20	23
Sewage disposal systems inspected	10	23	33
Water samples collected		31	31
Railway trains inspected	22		22
Canneries (fruit, meat, fish)	6	29	35
Reduction plants inspected	2	4	6
Slaughterhouses inspected	7	8	15
Dairies and creameries inspected	13	10	23
Food supply places inspected	213	453	666
Laundries inspected	10	16	26
Public schools inspected	15	16	31
Hospitals inspected	2	3	5
Bathhouses and swimming pools inspected		14	14
Jails inspected	1		1
Miscellaneous premises inspected	315	604	919
Sanitary reports submitted	157	141	298
Nuisances abated	404	602	1,006

SMALLPOX MORBIDITY FOR CALIFORNIA



REPORT OF THE STATE BOARD OF HEALTH.

FINANCIAL

Biennial Period July 1, 1916, to June 30, 1918

Name of appropriation	Salaries	Office expense	General expense
1. Antirabic Virus	\$1,489 96		\$438 14
2. Cold Storage	1,060 00		
	2,636 86		43 33
	3,619 55		178 46
3. Contagious Disease	6,255 41		221 98
4. District Health Offices	15,756 55	\$27 01	410 59
5. Social Hygiene	10,478 23	32 40	965 02
	14,480 22	57 78	793 39
	15,826 59	7 83	1,133 26
6. Hygienic Laboratory	30,316 81	65 61	1,916 46
	5,404 13		
	6,484 52		188 38
7. Nurses' Registration Fund	11,888 65		188 56
8. Printing			
	20,866 73	136 89	1,152 13
	23,851 49	254 47	1,054 96
9. Pure Food and Drugs	43,218 22	301 36	2,307 03
	11,772 87	85 67	739 54
	15,473 49	11 00	882 38
10. Sanitary Engineering	27,246 36	96 67	1,591 92
	8,028 58	403 24	259 03
	10,786 95	105 22	368 77
11. Travelling and Contingent	18,814 53	508 46	617 80
	5,554 06	29 96	350 83
	7,634 50	15 50	312 77
12. Tuberculosis	13,179 16	44 46	683 60
13. Stenographer	2,400 00		
Totals	\$182,003 88	\$1,165 97	\$9,189 75

STATEMENT.

—Sixty-eighth and Sixty-ninth Fiscal Years.

Postage	Telephone and telegraph	Traveling	Chemicals	Animals	Printing and stationery	Bulletin
\$168 00				\$168 55		
60 00		\$511 50			\$6 48	
		2,312 78			1,288 83	
		2,401 08			1,233 00	
		4,714 44			2,572 48	
147 02		4,719 56			580 06	
201 24		3,132 58				
244 36		1,517 77	110 96	132 20	311 06	
535 50		1,073 86	183 36	136 02	688 58	
779 86		2,561 63	204 32	268 22	904 61	
312 00		1,062 60			1,053 04	
630 00		1,355 86			1,283 27	
\$642 00		\$2,408 56			\$2,386 31	
					421 37	\$3,580 44
					2,200 74	2,642 43
					2,622 11	6,222 87
325 00		5,345 14	542 77		1,896 18	
328 70		5,604 55	508 00		439 65	
651 70		11,099 73	1,045 86		2,334 88	
136 00		1,728 01	185 39		471 41	
259 56		1,904 26	139 54		456 49	
395 56		3,632 27	324 92		927 90	
1,560 87	\$961 32	3,246 92				
2,148 80	835 19	2,753 95			1,261 51	
3,718 67	1,786 51	6,000 87			1,261 51	
360 00		1,803 03			1,751 09	
562 56		2,104 30			1,250 42	
922 58		3,907 33			3,001 51	
\$7,961 63	\$786 51	\$42,658 46	\$1,665 10	\$436 77	\$16,637 77	\$6,222 87

REPORT OF THE STATE BOARD OF HEALTH.

FINANCIAL STATE				
Biennial Period July 1, 1916, to June 30, 1918				
Name of appropriation	Binding	Equipment	Automobile expense	Squirrel extermination
1. Antirabic Virus				
2. Cold Storage			\$1,301 60	\$11,677 48
			2,491 80	18,546 3
3. Contagious Disease			3,793 49	30,223 87
4. District Health Offices		\$3,767 41	230 61	
5. Social Hygiene		1,414 44		
		425 75	114 34	
		4,084 50		
6. Hygienic Laboratory		4,510 25	114 34	
		318 27		
7. Nurses' Registration Fund		318 27		
	\$392 05			
	111 32			
8. Printing	503 97			
		3,933 70	551 83	
		1,750 14	1,304 08	
9. Pure Food and Drugs		5,083 84	1,855 86	
		1,044 74	870 65	
		2,445 71	1,478 06	
10. Sanitary Engineering		4,091 45	2,348 70	
			821 75	
		974 56	450 64	
11. Traveling and Contingent		874 56	1,278 09	
12. Tuberculosis				
13. Stenographer				
Totals	\$501 97	\$20,670 22	\$9,621 08	\$20,223 87

MENT—Continued.

—Sixty-eighth and Sixty-ninth Fiscal Years.

Advertising	Rent in Los Angeles	Miscellaneous	Ophthalmia neonatorum	Arseno benzol	Tuberculosis subsidies	Totals
		\$91 02				\$2,350 67
		48 03				1,676 01
		1,705 92				20,936 80
		2,180 56				30,702 25
		\$3,889 48				151,671 05
		103 08				125,741 00
		1,128 22		\$3,966 50		121,278 63
		439 09				19,627 34
		1,045 11				24,706 56
		1,484 79				143,336 90
\$41 62		337 29				8,200 77
75 07		30 49				10,965 74
116 60		367 78				118,593 51
						4,384 46
						4,964 49
						9,348 95
	\$162 00	1,193 25				36,107 65
	38 83	1,090 23				34,806 08
	200 83	2,286 48				170,915 74
		186 52				17,510 79
		30 53				23,071 01
		229 05				40,881 80
		4,579 93				19,800 64
		1,308 96				20,979 85
		5,978 80				40,940 49
		306 57			\$17,870 78	23,114 92
		968 86			49,078 63	61,907 56
		1 54 43			66,949 41	90,022 48
						2,400 00
\$116 60	\$200 83	\$16 958 25		\$3,966 50	\$16,949 41	\$419,031 13

FINANCIAL STATE

Biennial Period July 1, 1916, to June 30, 1918

Name of appropriation	Established	Reverting to General Fund. June 30, 1917	Chapter. 1917
1. Antirabic Virus	Chapter 391, 1913.....	*\$354 79	1915
2. Cold Storage	Chapter 360, 1913.....	165 78	1915
3. Contagious Disease	Chapter 218, 1908.....		424
4. District Health Offices.....	Chapter 358, 1917.....		358
5. Social Hygiene	Emergency, 1917		
6. Hygienic Laboratory	Chapter 223, 1905.....	449 50	358
7. Nurses' Registration	Chapter 319, 1913.....		51
8. Printing	1809		358
9. Pure Food and Drugs.....	Foodst. Ch. 181; Drugs, Ch. 181-183, 1907; Ch. 104, 1909	3,062 18	358
10. Sanitary Engineering	Ch. 373; Ch. 478-449, 1915.....		317
11. Travelling and Contingent.....	1870	3,882 02	358
12. Tuberculosis	Ch. 242-591, 1909; Ch. 776, 1915		423
13. Stenographer	Chapter 680, 1913.....		358
Totals		\$7,944 27	

Reverted amounts to be deducted from balances shown.

MENT—Continued.

—Sixty-eighth and Sixty-ninth Fiscal Years.

Amount of appropriation	Amount brought forward	Received from other sources	Total	Expenditures		Balances
				1916-17	1917-18	
	\$2,705 46		\$2,705 46	\$2,350 67		\$354 79
Fees	181 79	\$1,630 00	1,841 79	1,676 01		165 78
		3,188 72				
		1,311 19				
\$75,000 00	22,066 41	4,490 91	101,556 32	20,968 80	30,702 25	40,805 27
55,000 00	New		55,000 00		25,741 90	29,258 10
60,000 00			60,000 00		21,278 63	38,721 37
55,000 00	19,076 84		74,076 84	18,627 34	24,709 56	30,739 94
		3,708 36				
		8,070 00				
Fees	88,300 17	11,778 36	50,078 53	8,200 77	10,365 74	31,512 03
10,000 00	4,394 46		14,394 46	4,394 46	4,954 40	5,045 51
		2,126 20				
		3,835 95				
65,000 00	37,073 64	5,962 15	108,085 79	38,107 66	34,808 08	37,120 05
45,000 00	18,490 08	79 55	63,569 63	17,810 79	23,071 01	22,687 83
		1,273 74				
		7,826 38				
39,880 00	22,468 92	9,100 12	70,449 04	19,860 64	20,979 85	29,608 55
125,000 00	60,054 84		194,054 84	28,114 92	61,907 56	104,032 36
2,400 00	1,200 00		3,600 00	1,200 00	1,200 00	1,200 00
\$531,280 00	\$235,012 61	\$33,080 09	\$799,372 70	\$159,312 06	\$259,719 07	\$380,341 57

MORBIDITY REPORTS.

The reporting of cases of communicable diseases has improved year by year in California. It is only when the health officers report regularly, regardless of whether there have been any cases of communicable diseases, that we are able to always ascertain local health conditions and have complete records. A marked improvement has been shown in reporting cases of scarlet fever, malaria, smallpox and typhoid fever. The increase in the number of cases of venereal diseases is attributed to improved reporting on the part of physicians, and the great number of new cases discovered by army physicians which have come to light when the men reached the training camps. The year 1918, statistics for which are not included in this report, indicates still better reporting on the part of physicians and health officers.

In 1915 there were 36,952 cases of communicable diseases reported to the State Board of Health, as required by law.

In 1916 there were 36,358 cases of communicable diseases. The reason for this decrease was a marked drop in the number of cases of communicable disease, and not through laxity on the part of health officers in reporting. In 1917, there were no less than 65,134 cases reported, almost twice as many as during the preceding year. While it is still too early to estimate with any degree of accuracy how much the reporting of cases of communicable diseases has increased the total number of morbidity reports for the year 1918, the results thus far indicate that the total number of cases reported will be far greater than in any preceding year. This growth can be attributed to an increase in the number of cases of disease and more efficient reporting on the part of physicians and health officers.

While there has been a marked decrease in the number of cases of malaria reported during 1917, this is no indication that there are fewer cases of this disease, but physicians are lax in reporting these cases to health officers. The old adage of "an ounce of prevention is worth a pound of cure" was never more applicable than in dealing with the malaria situation. However, this ounce of prevention can not be applied unless we have knowledge that the evil exists. The economic loss resulting from malaria is enormous, but no definite figures can be obtained on account of the small proportion of cases of this disease which have been reported. When physicians and health officers will give the same attention to the reporting of malaria that is given to other diseases, greater progress can be made in checking this disease.

The general improvement in reporting is indicated in the following table:

Number of Cases and Deaths from Certain Diseases Reported During 1915, 1916 and 1917.

Diseases	1915		1916		1917	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Diphtheria	3,660	311	3,302	290	2,575	207
Leprosy	12		13		21	6
Malaria	522	49	946	54	750	47
Measles	13,114	128	4,268	41	22,021	188
Meningitis (epidemic cerebrospinal)	46	22	64	15	133	31
Poliomyelitis (acute infectious)	62	19	145	24	69	26
Rabies	3	3	1	1		
Rocky Mountain spotted fever	11		10			
Scarlet fever	2,898	53	3,894	34	4,514	49
Smallpox	336	3	248	12	329	13
Tuberculosis	6,213	5,551	6,980	5,267	6,962	5,457
Typhoid fever	1,150	276	1,304	208	1,429	225
Gonorrhea	695	6	1,083	6	3,006	11
Syphilis	612	243	1,536	270	1,797	298

GROUP I. COMMUNICABLE DISEASES.
Number of Cases and Deaths During 1916, by Months.

	January		February		March		April		May		June	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Diphtheria	336	24	265	23	385	27	231	27	354	33	329	27
Leprosy			2								1	
Malaria	2		14	6	49	1	22	4	114	3	48	5
Measles	252	4	389	2	792	4	491	6	447	3	293	6
Meningitis (epidemic cerebro)	10	1	4		6		2		9	6	2	1
Poliomyelitis	4	2	6	2	1		3		2	1	4	1
Rabies									1	1		
Rocky Mountain spotted fever									1		9	
Scarlet fever	368	2	360	2	419	5	320	2	393	3	187	3
Smallpox	22	1	63		34		20	3	18		5	
Tuberculosis	601	506	506	492	838	492	483	455	644	453	473	405
Typhoid fever	55	11	49	13	68	16	60	14	121	16	143	21

GROUP I. COMMUNICABLE DISEASES.

Number of Cases and Deaths During 1916, by Months—Continued.

	July		August		September		October		November		December		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Diphtheria	183	26	196	21	154	19	159	21	323	16	266	26	3,302	290
Leprosy	3	—	2	—	2	—	—	—	1	—	2	—	13	—
Malaria	114	19	167	2	196	10	109	9	85	2	23	2	946	54
Measles	225	7	106	2	175	1	198	1	406	4	494	1	4,208	41
Meningitis (epidemic cerebrospinal)	7	—	9	2	2	2	3	1	3	—	7	2	64	15
Poliomyelitis	12	1	19	3	19	4	26	3	28	4	21	3	145	24
Rabies	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Rocky Mountain spotted fever	—	—	—	—	—	—	—	—	—	—	—	—	10	—
Scarlet fever	149	4	178	1	198	1	347	2	559	3	401	5	3,894	94
Smallpox	17	1	12	1	13	2	6	1	22	2	10	1	243	13
Tuberculosis	408	306	647	309	618	346	548	375	637	406	517	513	6,980	5,367
Typhoid fever	133	25	170	16	132	28	85	19	91	13	97	16	1,304	208

GROUP II. COMMUNICABLE DISEASES.

Number of Cases Reported During 1916, by Months.

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Anthrax	—	1	—	—	—	2	—	3	4	2	—	1	13
Berl-beri	—	—	1	1	—	—	1	1	—	1	—	—	5
Chickenpox	373	411	799	429	538	363	152	106	145	100	480	445	4,401
Dysentery	—	1	4	4	2	3	1	14	1	2	9	2	43
Erysipelas	36	26	29	46	55	36	24	27	23	16	58	39	400
German measles	2	3	6	11	2	2	2	3	7	2	10	3	53
Gonococcus infection	266	95	88	52	89	34	77	94	87	59	93	49	1,088
Hookworm	—	—	—	—	—	1	—	1	—	—	1	—	3
Leprosy	—	2	—	—	—	1	3	2	2	—	1	2	13
Mumps	122	140	440	308	425	187	60	101	185	235	435	337	2,975
Pellagra	—	1	3	2	7	—	—	1	—	—	—	—	15
Plague	—	—	—	—	—	—	—	—	—	—	—	—	—
Pneumonia	186	134	145	124	157	90	68	73	60	96	221	297	1,680
Syphilis	240	108	128	102	127	99	118	114	99	159	184	113	1,536
Tetanus	—	4	8	1	2	3	7	7	3	2	1	2	35
Trachoma	21	10	7	2	20	4	9	6	9	9	8	15	121
Whooping cough	118	175	511	510	624	318	214	153	89	72	127	75	2,986
Typhus fever	—	—	—	—	—	1	3	2	16	4	2	—	26

GROUP I. COMMUNICABLE DISEASES.

Number of Cases and Deaths During 1917, by Months.

	January		February		March		April		May		June	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Diphtheria	354	17	316	21	196	15	150	22	229	16	126	13
Leprosy	2		3	1	3				3	1	1	2
Malaria	15		17		24	1	39	1	38	3	55	2
Measles	1,635	5	3,120	24	3,806	30	4,444	29	4,067	37	1,719	31
Meningitis (epidemic cerebro-spinal)	9	3	4	3	6	1	11	4	6	3	14	5
Polioomyelitis	7	6	2	1	4	2	1	2	2	1	3	3
Rabies												
Rocky Mountain spotted fever												
Scarlet fever	606	6	667	3	544	8	411	4	427	5	258	1
Smallpox	41	1	64	4	63	5	24	2	16		23	
Tuberculosis	663	554	563	496	592	558	617	520	624	455	450	440
Typhoid fever	135	25	60	11	63	15	53	9	76	14	81	18

GROUP I. COMMUNICABLE DISEASES.

Number of Cases and Deaths During 1917, by Months—Continued.

	July		August		September		October		November		December		Total	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Diphtheria	97	15	117	9	112	17	301	20	306	18	268	24	2,575	207
Leprosy	2				2		4	1	1			1	21	6
Malaria	75	5	138	8	158	9	141	7	47	4	12	7	759	47
Measles	666	14	540	3	332	310	1	465		855	14	22,021	168	
Meningitis (epidemic cerebro)	28	3	11		3		6		15	3	20	6	133	31
Polioomyelitis	4	1	11	1	9	2	9	3	10	2	7	2	69	26
Rabies														
Rocky Mountain spotted fever														
Scarlet fever	200	5	175	2	200		386	7	327	4	309	4	4,514	49
Smallpox	14		11		26		16		16	1	15		329	13
Tuberculosis	440	433	617	396	564	338	633	381	505	396	606	489	6,962	5,457
Typhoid fever	159	22	228	29	175	22	195	23	96	23	107	14	1,420	225

GROUP II. COMMUNICABLE DISEASES.

Number of Cases Reported During 1917, by Months.

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Anthrax	1						1	6	2	7	4	2	23
Beri-beri		1	1	2									4
Chickenpox	598	704	943	721	763	336	137	86	143	285	524	536	5,865
Dengue							1						1
Dysentery			2	1	5	15	8	8	13	13	7	2	71
Erysipelas	59	50	70	54	59	36	32	26	20	29	33	32	509
German measles	16	23	54	47	310	168	79	141	74	62	232	322	1,329
Gonococcus infection	208	112	119	166	177	151	201	322	317	302	502	339	3,406
Hookworm	68	50	28	32	11		1		1	9	24	21	244
Leprosy	2	3	3		3	1	2		2	4	1		21
Mumps	649	808	1,028	911	1,235	669	371	340	341	578	291	225	7,333
Pellagra			2	1	3	1	4	5	1	2	1	1	21
Pneumonia	328	238	182	169	177	107	66	93	185	180	296	406	2,432
Syphilis	177	123	113	133	131	79	114	141	143	170	212	261	1,797
Tetanus	2	2	2	1	3	2	3	7	4	6	5	1	36
Trachoma	15	9	17	24	11	2	1	4	9	14	34	30	170
Whooping cough	104	133	168	532	507	266	166	189	138	325	315	224	3,667
Typhus fever	1						1		1				2

Typhoid Fever.

Several important outbreaks of typhoid fever occurred during the biennial period covered by this report. The sources of infection were attributed to milk from infected dairies, water from typhoid polluted streams, carriers and oysters.

In May, 1916, an outbreak occurred at Helm, in Fresno County, resulting in 28 cases among persons attending a school picnic, the source of infection being ice cream infected by a typhoid carrier who prepared this food for the picnic.

A widespread epidemic also occurred in Taft, Maricopa and the West Side oil fields of Kern County during May, June and July, 1916. There were 112 cases, some of which were due to the use of milk from a dairy employing a milker who had an ambulatory case, the rest resulting from secondary infections, and from a carrier in an ice cream parlor. In the period from May, 1916, to May, 1917, there was an outbreak in Bakersfield, the source of which was found in a carrier connected with a dairy resulting in 24 cases among persons using this milk.

A water-borne outbreak occurred in San Pablo Canyon in Contra Costa County involving a total of 52 cases reported from a construction camp in this canyon. The water from San Pablo Creek, which supplied this camp, was found to be polluted.

An unusual typhoid outbreak occurred in January, 1917, in San Diego City, resulting in 42 cases. This outbreak was traced to persons consuming raw oysters obtained from beds which were badly polluted by sewage. In the latter part of June, 1917, running through July and August, an outbreak occurred in Modesto resulting in 51 cases. An investigation showed that this epidemic was due to milk from a dairy, which had previously employed a typhoid carrier.

In the fall of 1917 a widespread outbreak occurred in Hollywood, Los Angeles County, resulting in 30 cases, source of infection being

milk-borne. During this same period an outbreak occurred in Blythe, resulting in 14 cases.

While the number of cases of typhoid reported in the past two years shows an increase over the number reported in 1915, yet, the mortality tables show a decrease. This, coupled with the increase in population, furnishes adequate testimony of the great amount of typhoid control work which has been done. It also indicates the counties in which the least control work has been done. This disease is not reported as it should be in several counties. In the detailed tables for the year 1917 it will be noted that Inyo and Tuolumne counties have reported deaths from typhoid fever, but have not reported any cases.

Despite the fact that the greater number of cases are reported from the larger cities of the state, San Francisco, Los Angeles, Oakland, Sacramento and San Diego, yet, the highest rates in proportion to population are from rural communities.

**Average Mortality From Typhoid Fever Per 100,000 Population by Counties,
Covering Past Three Years.**

County	1915	1916	1917	County	1915	1916	1917
Alameda	9.8	6.6	3.0	Orange	19.0	9.0	6.6
Alpine				Placer	10.2		9.9
Amador	22.0	97.0	11.0	Plumas		17.7	
Butte	36.7	11.5	11.5	Riverside	13.8	15.4	14.9
Calaveras	21.8		11.0	Sacramento	23.5	8.5	13.1
Colusa	75.7		24.9	San Benito		11.2	11.0
Contra Costa	18.0	9.0	4.8	San Bernardino	4.2	10.7	10.3
Del Norte				San Diego	8.9	7.2	12.8
El Dorado		13.3	40.0	San Francisco	9.0	3.4	5.1
Fresno	11.5	11.6	16.4	San Joaquin	18.7	14.9	16.1
Glenn	36.4	11.6		San Luis Obispo	9.6	18.9	
Humboldt	5.3		2.9	San Mateo		5.6	8.1
Imperial	17.2	42.3	4.6	Santa Barbara	15.4	17.9	11.7
Inyo		11.6	22.6	Santa Clara	8.3	6.0	4.0
Kern	25.5	17.5	13.1	Santa Cruz	3.6	3.4	3.4
Kings	36.2	9.8	14.6	Shasta	15.2	25.0	5.0
Lake	20.2	20.0		Sierra			
Lassen				Siskiyou	15.2		
Los Angeles	5.6	4.4	5.9	Solano	10.2	3.3	3.3
Madera		10.4		Sonoma	7.5	9.0	5.0
Marin	3.3			Stanislaus	29.2	6.5	28.1
Mariposa				Sutter	16.3		30.0
Mendocino		3.8	3.8	Tehama	25.8	29.0	25.9
Merced	5.5		5.1	Trinity			
Modoc				Tulare	6.8	6.4	8.1
Mono				Tuolumne	10.0	20.0	20.0
Monterey	11.3	3.7	3.7	Ventura	2.9	4.7	4.6
Napa				Yolo	7.1	14.1	
Nevada		6.9	6.9	Yuba	18.5	18.3	9.0

Typhoid Fever, 1916—Number of Cases and

County	January		February		March		April		May	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Alameda	3	1	5		9	2	7	4	16	3
Alpine										
Amador					1	1	1			
Butte	1				1	1	1		2	
Calaveras										
Oolusa									1	
Contra Costa					1		2		2	
Del Norte										
El Dorado										
Fresno	3		3			1			3	2
Glenn										1
Humboldt					1					
Imperial			1		1	1			5	1
Inyo										
Kern					2				3	1
Kings	1								3	
Lake										
Lassen										
Los Angeles	7		4	3	14	1	12	2	17	4
Madera										
Marin										
Mariposa										
Mendocino			3		2					
Merced							1			
Modoc			2							
Mono										
Monterey	2									
Napa										
Nevada	1	1								
Orange		1	2					1	8	1
Placer			1							
Plumas										
Riverside	1		1	2	1		2	1	3	
Sacramento	1	2	1	1	3	1	2		2	
San Benito										
San Bernardino			2	1	4	1	4		1	
San Diego	9	1	8	1	9	1	1		3	1
San Francisco	11		15	2	12	2	20	1	14	
San Joaquin					3	3	1	1	3	
San Luis Obispo	1	1			1				3	
San Mateo								1		
Santa Barbara	1			1	2	1			1	
Santa Clara	1						1		2	2
Santa Cruz			1							
Shasta	7									
Sierra										
Siskiyou										
Solano	1			1	2		1			
Sonoma	1	1					1		2	
Stanislaus					1		2	1	1	
Sutter										
Tehama				1			2			
Trinity										
Tulare									1	
Tuolumne	1	2							1	
Ventura	1									
Yolo										
Yuba	1	1						1		
Totals	55	11	49	13	68	16	60	14	121	16

Deaths, Reported by Months, by Counties.

June		July		August		September		October		November		December		Total	
Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
4	2	6	2	17	4	4	---	7	1	7	1	47	2	131	22
---	---	1	---	1	---	---	---	1	1	1	---	3	---	7	3
---	---	1	2	6	---	4	---	7	1	1	---	---	---	24	4
2	---	2	---	2	---	2	---	---	---	---	---	---	---	9	---
3	---	3	---	9	---	---	2	2	---	2	1	1	---	24	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
5	4	4	3	8	1	4	1	1	---	2	---	---	---	56	12
1	---	---	---	1	---	1	---	---	---	---	---	---	---	3	1
1	---	1	---	---	---	1	---	---	---	1	---	---	---	5	---
3	2	---	---	4	1	3	1	1	---	1	---	2	2	20	8
---	---	---	---	2	---	---	---	---	---	1	---	---	---	2	1
46	3	25	2	11	1	7	1	1	---	2	---	1	---	97	9
1	---	---	1	1	---	5	1	2	---	---	---	---	---	13	2
1	---	---	---	---	---	---	---	1	---	---	1	---	---	2	1
22	3	33	6	30	1	15	4	12	2	25	3	7	3	108	32
---	---	1	---	---	---	---	---	---	1	---	---	---	---	1	1
1	---	1	---	1	---	1	---	---	---	---	---	---	---	4	---
---	---	3	---	1	---	---	---	1	1	1	---	---	---	11	1
---	---	1	---	---	---	1	---	---	---	1	---	---	---	3	---
---	---	---	---	---	---	1	---	---	---	---	---	---	---	4	---
1	1	---	---	1	---	1	---	1	---	1	---	1	---	8	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1
2	---	4	---	9	---	4	---	5	1	---	---	---	---	34	4
---	---	---	---	---	---	---	---	---	---	---	---	2	---	3	---
---	---	---	---	---	---	1	1	---	---	---	---	---	---	1	1
6	---	---	---	---	3	6	1	4	1	1	1	1	2	23	7
6	---	5	---	8	1	6	---	1	---	4	1	---	---	39	7
---	---	---	---	---	---	1	---	---	1	1	---	---	---	3	1
3	1	---	2	2	1	9	1	1	1	2	---	---	---	29	8
1	1	2	---	2	---	4	---	2	---	3	1	6	---	50	6
14	1	13	1	23	---	19	5	17	2	13	---	8	2	189	16
6	---	9	1	1	---	5	1	3	1	2	1	3	1	36	9
1	---	1	1	4	1	3	1	---	---	1	---	---	---	15	4
2	1	---	---	1	---	---	1	---	---	1	---	---	---	4	2
3	1	---	---	4	1	2	---	1	1	2	1	---	---	16	6
2	1	1	---	5	2	7	---	2	1	---	---	---	---	23	6
---	---	---	---	1	---	1	1	---	---	2	---	1	---	4	1
1	1	1	1	---	---	4	2	2	---	2	1	---	---	19	5
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	1	---	2	---	2	---	3	---	---	---	8	---
1	---	2	---	1	---	---	---	---	1	---	---	---	---	9	1
1	---	1	---	5	2	5	1	1	1	6	---	1	---	24	5
2	---	2	1	2	---	---	---	---	---	1	---	---	---	11	2
1	---	1	---	---	---	---	---	1	---	---	---	1	---	4	---
---	---	6	1	1	---	2	---	3	1	---	---	1	---	15	3
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
---	---	1	1	1	---	---	1	---	---	---	---	1	---	3	3
---	---	---	---	---	---	---	---	---	---	---	---	---	---	2	2
---	---	3	---	---	---	---	---	---	---	---	---	1	---	4	1
---	---	---	---	1	---	2	1	3	1	1	---	---	---	7	2
---	---	---	---	2	---	---	---	---	---	---	---	---	---	3	2
143	21	123	25	170	16	132	28	85	19	91	13	97	16	1,204	248

Typhoid Fever, 1917—Number of Cases and

County	January		February		March		April		May	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Alameda	19	1	7		2	3			16	2
Alpine										
Amador	1	1								
Butte			2			1	3		1	
Calaveras										
Colusa									1	
Contra Costa	1		1		2				3	
Del Norte										
El Dorado	1	1								
Fresno	1				1	1			1	2
Glenn										
Humboldt		1								
Imperial	2	2			2	1			7	1
Inyo		1		1						
Kern	4	1			4	1	7		3	2
Kings	1								1	
Lake										
Lassen							1			
Los Angeles	19	5	17	2	10	3	7	1	21	3
Madera										
Marin					1					
Mariposa										
Mendocino										
Merced										
Modoc	1									
Mono										
Monterey									1	
Napa										
Nevada			2				1			
Orange					4					
Placer					1		4	1	2	
Plumas									1	
Riverside	1		2	1	2	1	6			
Sacramento	6	3	2	1	1	1	1		1	
San Benito							1			
San Bernardino					1		1	1		
San Diego	38	1	1	2	2	1			1	2
San Francisco	17	1	20	3	11	1	16	3	9	1
San Joaquin	9	2	2		4		1		3	
San Luis Obispo	1									
San Mateo		1			2		1	1		
Santa Barbara		1			1					
Santa Clara	3	1			5				2	
Santa Cruz			1	1						
Shasta	2		1		2					
Sierra										
Siskiyou			1		2					
Solano		1			1					
Sonoma	6		1				2	1		
Stanislaus	2	1			2	1	1			
Sutter										
Tehama							1	1	1	
Trinity										
Tulare										1
Tuolumne										
Ventura							1			
Yolo									1	
Yuba										
Totals	135	25	69	11	63	15	53	9	76	14

Deaths, Reported by Months, by Counties.

June		July		August		September		October		November		December		Total	
Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
10	1	8		24	1	14	2	7		6		9	1	122	11
														1	1
		1		1	1	1		7	2	1				17	4
						3		2			1			5	1
		2	1	3	1									6	2
3	1	6		2	1			1		1		1		21	2
		2				4	1	1	1	1				9	3
3		5	2	9	2	13	4	9	2	17	2	6	2	65	17
						2								2	
						3								4	1
9	2	12	1	1		1		10		1	1	2		47	8
															2
4		1		5		1		1	1	2	1	3		34	7
			3	4		1		2		1				10	5
1				2		4								8	
9	2	27	4	53	6	50	5	56	6	11	4	29	3	300	44
				2		2				1				5	
														1	
				1		1		3	1	1		1		1	
	1											1		9	1
				1								1		1	1
														2	
3										1	1	2		7	1
		1						2						3	
		4				2		1				1		14	1
1				3	2	1		5		1		4		22	3
1	1	1				1	1					1		5	2
												1		1	
1	2	4	1	11	1	12	1	4				9		52	7
6		9		12		7	1	10	2	4		2	3	61	11
														2	1
1		5	2	5	1	5	2	5			1	1		23	8
				5		4	1	6	2	4	2	2		64	11
12	2	19	3	21	2	20		17	2	15	4	18	2	198	24
5		1	1	8	3	1		21	1	10	2	3	1	68	10
1				2		1				2				7	
		1		1		1						1		7	2
1		1		1	1			1	2	1				6	4
1		8		3	1	4		6	1	1		1	1	34	4
				1				2						4	1
				3		1	1			1				10	1
		2		6				5						16	
1		5		4		1				1				13	1
5	2	7		2				2		5				30	3
2		23	2	22	5	4		1		1		2		60	9
				2		9	1	3		1	1	3		18	2
		1	1	1		1	1	1				1		7	3
	1	2		1		2		2		2	2			9	4
			1								1				2
	1			2				1						4	1
1								1		2				5	
		1		2	1							1		4	1
81	18	159	22	228	29	176	22	195	23	95	23	107	14	1,429	225

Smallpox.

There has been a marked increase in the number of cases of smallpox reported during the year 1917 over 1916. This may be partly attributed to improved reporting on the part of physicians and health officers. However, the majority of these smallpox cases may be traced to minor outbreaks. In the year 1918 figures for which are not included in this biennial report, there has been a decided increase over the number of cases reported during 1917. Minor outbreaks, particularly in smaller communities, where the first eruptions broke out in mild form and were diagnosed as "chickenpox" have been responsible for this increase. This was true in the year 1918 in Imperial County. The Children's Year Program was instrumental in revealing the smallpox outbreak in Santa Clara County.

In July, 1916, a smallpox outbreak occurred in Perris, Riverside County, 12 cases having been reported by the local health officer. All of these cases were in Mexicans who had recently come to Perris from Laredo, Texas, where there was an outbreak of smallpox among Mexican refugees. During the year 1916, Imperial, Los Angeles and Riverside counties led in the number of cases reported. In the year 1917 San Francisco heads the list with a total of 102 cases.

Owing to the demand for manual laborers, due to war conditions, a great number of Mexican laborers have entered California. We believe that the large number of cases of smallpox in southern California may be traced to this source. Several cases of smallpox have been discovered in this state where the patient contracted the infection outside of the State, as in the Perris outbreak.

Nearly all persons who have had smallpox in California give histories of never having been successfully vaccinated. The proportion of those who were last vaccinated more than seven years preceding the attack is exceedingly small, and a very few of those having had smallpox were vaccinated within seven years preceding the attack. Unfortunately, with the drop in the number of cases of smallpox, the number of vaccinations has also dropped, for there is no law making vaccination compulsory in California. It holds true that when smallpox is most prevalent, vaccination is relatively in demand. During the years just preceding 1917, the number of cases of smallpox had been considerably less, and this factor accounts for the drop in the number of vaccinations, and consequent increase in the number of cases of smallpox. It is not actually known how long a successful "take" in vaccination will hold good; oftentimes during a whole lifetime, but unless control methods are adopted, the State will again see a decided recurrence, with resultant great expense and suffering.

Smallpox—Vaccination Histories of Cases Reported During 1916.

	Number new cases reported during month	Deaths	Number vaccinated within seven years preceding attack	Number last vaccinated more than seven years preceding attack	Number never success- fully vaccinated	Vaccina- tion not obtained or uncertain
January	22	1	1	9	9	3
February	63		5	10	43	5
March	34		2	8	18	6
April	20	3		4	12	4
May	18		2	11	4	1
June	5			2	2	1
July	17	1	1		15	1
August	12	1			9	3
September	13	2	3	1	5	4
October	6	1			5	1
November	22	2		1	16	5
December	10	1	1	2	7	
Totals	242	12	15	48	145	34

Smallpox—Vaccination Histories of Cases Reported During 1917.

	Number new cases reported during month	Deaths	Number vaccinated within seven years preceding attack	Number last vaccinated more than seven years preceding attack	Number never success- fully vaccinated	Vaccina- tion history not obtained or uncertain
January	41	1		5	28	8
February	64	4	4	10	50	
March	63	5	1	10	50	2
April	24	2		2	20	2
May	16				14	2
June	23				19	4
July	14				11	3
August	11			1	10	
September	26				22	4
October	16				13	3
November	16	1		2	12	2
December	15				13	2
Totals	329	13	5	30	202	32

Smallpox, 1916—Number of Cases and

County	January		February		March		April		May	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Alameda					3		1		1	
Alpine										
Amador			10		4				1	
Butte					2					
Calaveras										
Colusa	5		3							
Contra Costa										
Del Norte										
El Dorado			1		2		3		3	
Fresno					1					
Glenn			2							
Humboldt										
Imperial	1		14						1	
Inyo										
Kern									1	
Kings										
Lake										
Lassen										
Los Angeles	7	1	27		15		12	2	10	
Madera										
Marin										
Mariposa										
Mendocino										
Merced	2									
Modoc										
Mono										
Monterey										
Napa										
Nevada										
Orange										
Placer										
Plumas										
Riverside	1									
Sacramento			1							
San Benito										
San Bernardino			1		5			1	1	
San Diego	1						3			
San Francisco	3				1					
San Joaquin	1		2		1		1			
San Luis Obispo										
San Mateo										
Santa Barbara										
Santa Clara	1									
Santa Cruz										
Shasta										
Sierra										
Siskiyou			1							
Solano										
Sonoma										
Stanislaus										
Sutter										
Tehama										
Trinity										
Tulare			1							
Tuolumne										
Ventura										
Yolo										
Yuba										
Totals	22	1	63		34		20	3	18	

Deaths Reported by Months, by Counties.

June		July		August		September		October		November		December		Total	
Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1						1		4	1	3		2		16	1
														15	
														2	
										1	1	6	1	8	
														7	2
														9	
		1		3	1									5	1
														2	
								1						1	
2										2				20	
				1		1				2	1			5	1
		1		3		1								76	3
														2	
										5				5	
		12				7	2	1		6				27	2
														1	
2		2												11	1
				1						1		1		4	
														7	
														5	
										1				1	
														1	
														1	
				4		3								8	
		1	1											1	1
										1		1		2	
5		17	1	12	1	13	2	6	1	22	2	10	1	28	12

Smallpox, 1917—Number of Cases and

County	January		February		March		April		May	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Alameda	6		12	2	1		5		2	
Alpine										
Amador										
Butte	1				1					
Calaveras										
Colusa										
Contra Costa										
Del Norte										
El Dorado					1					
Fresno	2									
Glenn										
Humboldt										
Imperial	1								4	
Inyo										
Kern										
Kings										
Lake										
Lassen										
Los Angeles	2		2		9		3		4	
Madera										
Marin	1								1	
Mariposa										
Mendocino										
Merced										
Modoc										
Mono										
Monterey										
Napa										
Nevada										
Orange	1									
Placer	3		1							
Plumas										
Riverside										
Sacramento										
San Benito										
San Bernardino					15		1		2	
San Diego	2		2		1					
San Francisco	14	1	38	2	31	3	12			
San Joaquin					2		2			
San Luis Obispo										
San Mateo			1							
Santa Barbara										
Santa Clara			1		2	2	2		1	
Santa Cruz										
Shasta									1	
Sierra										
Siskiyou										
Solano	3		7				1		1	
Sonoma										
Stanislaus										
Sutter										
Tehama										
Trinity										
Tulare										
Tuolumne										
Ventura										
Yolo										
Yuba										
Totals	41	1	64	4	63	5	24	2	16	

Deaths Reported by Months, by Counties.

June		July		August		September		October		November		December		Total	
Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
3				1		1						2		33	2
		1												1	
														2	
8		9		9		1		2						32	
														5	
								11	1			2		14	
4						2			2			4		32	
3														5	
						19		3	2			2		26	
														1	
														4	
		1												1	
												1		1	
5		1										1		25	
				1		3			1	1		2		6	
														102	7
														4	
		1												2	
														4	4
														1	
									1			1		19	
										8					8
		1												1	
23		14		11		26		16		16	1	15		329	13

REPORT OF THE STATE BOARD OF HEALTH.

**Poliomyelitis (Infantile Paralysis)—Number of Cases and Deaths in California.
January 1, 1915, to December 31, 1917.**

	1915		1916		1917		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
January	6		4	2	7	6	17	8
February	2	1	6	2	2	1	10	4
March	2	3	1		4	2	7	5
April	2	3	3		1	2	6	3
May	3	1	2	1	2	1	7	3
June	6	2	4	1	3	3	13	6
July	1	1	12	1	4	1	17	3
August	2		19	3	11	1	32	4
September	12	2	19	4	9	2	40	8
October	4	3	26	3	9	3	39	9
November	12	1	28	4	10	2	50	7
December	10	2	21	3	7	2	38	7
Totals	62	19	145	24	69	26	276	60

Poliomyelitis, 1916—Number of Cases Reported by Months, by Counties.

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alameda County			1				1	3		2		1	8
Amador County										1		1	2
Butte County								1	2	1			4
Calaveras County											1		1
Colusa County											1		1
Contra Costa County											1		1
Fresno County										1			1
Humboldt County											1		1
Imperial County							1	1					2
Kern County		1											1
Kings County									2		1		3
Los Angeles County	4	4		1	2	1	4	5	3	5	3	4	35
Marin County											2	1	3
Mendocino County									2				2
Nevada County											1		1
Riverside County								3		1	3		7
Sacramento County				2							1		3
San Bernardino County											1	1	2
San Francisco County						2	5	3	6	6	6	7	35
San Joaquin County						1		1	2				4
San Luis Obispo County										1	1	1	3
Santa Barbara County										4	1		5
Santa Clara County									1	1	1	1	4
Solano County						1							1
Sonoma County		1						1		1	1		4
Stanislaus County									1				1
Tehama County								1		2	1	1	5
Tulare County											1		1
Ventura County												1	1
Yuba County												2	2
Totals	4	6	1	3	2	4	12	10	19	26	28	21	145

Poliomyelitis, 1917—Number of Cases Reported by Months, by Counties.

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alameda County							1	1	1	2	2		7
Butte County											1	1	2
Contra Costa County											1		1
Fresno County			1										1
Glenn County			1					2					3
Los Angeles	1			1		3		1	2	6	2	2	18
Marin County							1	1					2
Mendocino County									1				1
Merced County		1											1
Nevada County										2			2
Orange County	1						1						2
Placer County									1				1
Riverside County											1		1
San Diego County	1								2				3
San Francisco County	2							3				1	6
San Joaquin County												2	2
San Mateo County								1	1		1		3
Santa Barbara County		1											1
Santa Clara County			1				1						2
Santa Cruz County					1								1
Shasta County	1												1
Sonoma County	1							1	1				3
Sutter County												1	1
Tehama County			1										1
Tulare County					1								1
Yuba County								1		1			2
Totals	7	2	4	1	2	3	4	11	9	9	10	7	68

Cerebrospinal Meningitis, 1916—Number of Cases Reported by Months, by Counties.

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Contra Costa County								1					1
Imperial County					1		1						2
Inyo County					2								2
Kern County		1											1
Los Angeles County	2	2	1		4		2	2	1		2	4	20
Marin County			1										1
Mendocino County		1	1										2
Orange County	1		1					1		1			4
Riverside County	1												1
Sacramento County	1				1								2
San Bernardino County	1		1							1			3
San Diego County			1	1									2
San Francisco County	3								1			2	6
San Joaquin County					1		3	4				1	9
San Mateo County						1							1
Santa Barbara County								1		1			2
Siskiyou County						1							1
Solano County				1									1
Sonoma County	1												1
Stanislaus County										1			1
Tehama County							1						1
Totals	10	4	6	2	9	2	7	9	2	3	3	7	61

REPORT OF THE STATE BOARD OF HEALTH.

Cerebrospinal Meningitis, 1917—Number of Cases Reported by Months, by Counties

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alameda County		1			1	1	2	3		1	1		10
Butte County	1			1									2
Contra Costa County				1	1			1					3
Fresno County		1		1								1	3
Kern County	1	1		1									3
Los Angeles County	2		5		1	4	1				1	8	22
Merced County				1									1
Orange County												1	1
Placer County							1						1
Sacramento County			1										1
San Bernardino County				1									1
San Diego County						2	18	4	1	3	12	6	47
San Francisco County	2			4	3	3	5	2	1	1		2	25
San Joaquin County				1		1		1					3
San Mateo County									1				1
Santa Clara County	2												2
Solano County		1								1		1	3
Sonoma County												1	1
Ventura County	1					3	1						5
Totals	9	4	6	11	6	14	28	11	3	6	15	20	123

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES.

FRANK L. KELLY, M.D., Gr.P.H., Director.

DIVISION OF THE HYGIENIC LABORATORY.

Karl F. Meyer, D.V.M.	Consulting Bacteriologist
Ida M. Stevens, M.A. (P.H.)	Bacteriologist
Grace A. Macmillan	Bacteriologist
Eschscholtzia Lichthardt, B.A.	Bacteriologist
Violet M. Bathgate, M.S., Southern Branch, Los Angeles	Bacteriologist
Mrs. L. Ramsay, Northern Branch, Sacramento	Bacteriologist
A. R. Wickham	Technician
Lucy Powers, Southern Branch, Los Angeles	Technician
Florence B. Shackelford	Stenographer
Mary G. Beck	Stenographer
Lucile Bofinger	Stenographer
Grace B. Naquin, Southern Branch, Los Angeles	Stenographer

DIVISION OF EPIDEMIOLOGY.

Frank L. Kelly, M.D., Gr.P.H.	Epidemiologist
John N. Force, M.D., Gr.P.H.*	Consulting Epidemiologist

DIVISION OF PARASITOLOGY.

C. A. Kofoid, Ph.D.*	Consulting Parasitologist
Wm. W. Cort, Ph.D.	Consulting Helminthologist

DIVISION OF ENTOMOLOGY.

Wm. B. Herms, M.S.*	Consulting Entomologist
Stanley B. Freeborn, M.S.	Acting Consulting Entomologist
Rodney F. Atsatt	Inspector

During the past two years several changes have been made in the organization of the Bureau of Communicable Diseases. The most important change was the establishment in August, 1917, of the Southern Branch at Los Angeles, with a full-time bacteriologist in charge. Heretofore the work of the Southern Branch had been done by private laboratories on a part-time basis. Besides this change, the divisions of the bureau were rearranged so that there are now four divisions—the Division of the Hygienic Laboratory, the Division of Epidemiology, the Division of Parasitology and the Division of Entomology.

DIVISION OF THE HYGIENIC LABORATORY.

The work of this division may be grouped under two headings: I. Biological Examinations. II. Preventive Therapeutics.

I.

Biological Examinations.

The work of the diagnostic laboratory has increased greatly during this period, as will be seen from Table II. There has been a 60 per cent increase in the diagnostic work over the previous biennial period. This does not include the examinations made by the Division of Parasitology

*On Federal service.

for hookworm, which were formerly made by the diagnostic laboratory. Even with this increase the laboratory is serving only a small part of the physicians in the state and it is hoped that with the aid of the state district health officers we will now be able to reach a great many more. An important branch of the work is the examination of the excreta of convalescent typhoid patients and an effort will be made to have physicians make it a routine practice to send specimens to the laboratory from all such cases. Diagnostic examinations are made for the following diseases:

- Anthrax, blood and tissue.
- Botulism, suspected food.
- Diphtheria, swabs from nose and throat.
- Dysentery, blood (agglutination); feces.
- Gonococcus Infection, smears.
- Hookworm and Intestinal Worms, feces.
- Intestinal Protozoa, feces.
- Leprosy, smears and tissue.
- Malaria, blood.
- Meningitis (epidemic), spinal fluid.
- Pneumonia, sputum.
- Rabies, brain tissue.
- Rocky Mountain Spotted Fever, blood (animal inoculation).
- Syphilis, blood and spinal fluid (Wassermann).
- Tuberculosis, sputum.
- Typhoid, blood (agglutination); feces; urine.
- Typhus, blood (animal inoculation).

The technique used in the different examinations will be found at the end of the bureau report.

Containers for sending specimens to the laboratory are furnished free by the bureau. These containers comply with the postal regulations and persons are warned against sending in specimens in any other way. Containers will be sent direct from the laboratory to physicians on request or can be obtained from any of the authorized depositories, a list of which is appended at the end of this report.

II.

Preventive Therapeutics.

At present the bureau prepares two biologic products, antirabic virus and typhoid and typhoid-paratyphoid vaccine. The antirabic virus is prepared according to the method used by the Hygienic Laboratory of the United States Public Health Service. It is administered free at the main laboratory at Berkeley and its branches, and at certain cities by authorized health departments and hospitals in the state. From July, 1916, to June, 1918, inclusive, thirty-nine antirabic treatments were either distributed or administered at the main laboratory. The typhoid and typhoid-paratyphoid vaccines are prepared according to the methods used by the Hygienic Laboratory of the United States Public Health Service. This is known as the "Army" vaccine. Heretofore, the bureau prepared and distributed a sensitized, sedimented vaccine prepared according to the method of Gay and Claypole. It

was deemed advisable to change to the Army type of vaccine, as this is the vaccine recommended by the United States Public Health Service. The vaccines are distributed free to physicians and institutions throughout the state. During this biennial period five thousand twelve complete treatments were distributed. Besides these biologics the bureau distributes free to physicians, midwives and institutions ampules of 1 per cent silver nitrate solution for the prevention of ophthalmia neonatorum. Ten thousand eight hundred six of these outfits were sent out during the past biennial period.

DIVISION OF EPIDEMIOLOGY.

Since April, 1917, the bureau has made every possible endeavor to assist the federal government in the control of communicable diseases in and about army and navy camps and reservations. That such aid has been recognized and appreciated is shown by the fact that when epidemic meningitis appeared among the student aviators at Berkeley. Dr. Sandow, the medical officer in charge, was told by the department at Washington to take up the matter with the State Hygienic Laboratory. We were able to give assistance in culturing the exposed men and in recommending measures to prevent the spread of the disease.

Probably two of the most important field problems with which this bureau has to deal are those of typhoid fever and dysentery. During the past two years, over twenty outbreaks of typhoid fever have been investigated. In some instances, we were not informed of the outbreak until too late to be of any assistance, but in the majority of the epidemics the source of the infection was located, the epidemic stopped and measures taken to prevent further trouble. About ten outbreaks of bacillary dysentery have come to the attention of the bureau. While most of these have been confined to a few cases, the work of the laboratory has been of great value in establishing the proper diagnosis and recommending measures to prevent the spread of the disease.

During the widespread epidemic of poliomyelitis in the United States in 1916, the bureau made over twenty investigations in the state in order to assist in diagnosing the disease and to prevent its spread. Whether or not this work was of any great value in preventing an epidemic in California can not be definitely stated. However, the fact remains that the epidemic predicted for California for 1917 did not materialize.

When typhus fever was introduced into southern California in 1916 and reached the proportions of an epidemic which threatened to become serious, the prompt work of the bureau in establishing and enforcing control measures not only prevented the spread of the disease but entirely stamped it out.

In the summer of 1917, when an epidemic of cerebro-spinal meningitis threatened the Naval Training Station at San Diego, the bureau co-operated with the Navy and the United States Public Health Service in culturing the men. This work was put on a proper scientific basis through the efforts of Dr. K. F. Meyer, consulting bacteriologist of the bureau. The bureau assisted in culturing the men at the Naval Training Camp at San Pedro and also at Fort McArthur.

During the past biennial period there were one hundred and six epidemiological investigations made, thirty-three more than during the

period from July, 1914, to July, 1916. Following is a list of the epidemiological investigations for this period:

Epidemiological Investigations.

July, 1916—

1. Acute anterior poliomyelitis, Vallejo.
2. Acute anterior poliomyelitis, Oakland.
3. Acute anterior poliomyelitis, Santa Rosa.
4. Acute anterior poliomyelitis, Oakland.
5. Continuation, hookworm in gold mines of California.
6. Acute anterior poliomyelitis, Richmond.
7. Acute anterior poliomyelitis, Antioch.
8. Typhoid fever, Maricopa and Taft.

August—

- 8a. Continuation, typhoid fever, Maricopa and Taft.

September—

9. Bacillary dysentery, Pinole.
10. Diphtheria, San Jose.
11. Smallpox, Banning.
12. Typhoid fever, San Jose.
13. Typhoid fever, Steamship Matsonia.
14. Typhus fever, southern California.

October—

15. Typhus fever, southern California.
16. Hookworm, Grass Valley.
17. Diphtheria, Collinsville.
18. Acute anterior poliomyelitis, Ione.
19. Acute anterior poliomyelitis, San Mateo.
20. Acute anterior poliomyelitis, Gustine.
21. Smallpox, Alameda County Infirmary.
22. Typhus fever, southern California.
23. Hookworm, Grass Valley.

November—

- 23a. Continuation, hookworm, Grass Valley.
- 22a. Continuation, typhus fever, southern California.
24. Tetanus, San Francisco.
25. Bacillary dysentery, Napa.
26. Typhoid fever, Sonoma State Home, Eldridge.
27. Broncho-pneumonia, Sonoma State Home, Eldridge.
28. Typhoid fever, Rodeo.

December—

29. Acute anterior poliomyelitis, Oakland.
30. Acute anterior poliomyelitis, Marysville.
31. Acute anterior poliomyelitis, Avila.
32. Chickenpox, Oakland.
- 22b. Continuation, typhus fever, California.
33. Acute anterior poliomyelitis, Mill Valley.
34. Acute anterior poliomyelitis, Oakland.
35. Acute anterior poliomyelitis, Lagunitas.
36. Acute anterior poliomyelitis, San Luis Obispo.
- 23b. Continuation, hookworm, Grass Valley.
37. Botulism, Corning.
38. Typhoid fever, San Pablo Dam Construction Camp, Contra Costa Co.

January, 1917—

- 39. Diphtheria, Monterey.
- 40. Typhus fever, Clovis.
- 41. Acute anterior poliomyelitis, Kennett.
- 42. Post-vaccination tetanus, San Francisco.
- 43. Acute anterior poliomyelitis, Mill Valley.
- 44. Anthrax, Alameda County Hospital.
- 45. Scarlet fever, Alameda.
- 46. Typhoid fever, Alameda.
- 23e. Continuation, hookworm, California.
- 38a. Continuation, typhoid fever, San Pablo Dam Construction Camp, Contra Costa County.

February—

- 47. Acute anterior poliomyelitis, Redding.
- 48. Acute anterior poliomyelitis, Modesto.
- 49. Scarlet fever, San Leandro.
- 23d. Continuation, hookworm, California.
- 22b. Continuation, typhus fever, California.
- 50. Typhoid fever, Bakersfield.

March—

- 51. Trichinosis, San Rafael.
- 52. Diphtheria, Crockett.
- 53. Typhoid fever, Bakersfield.
- 54. Scarlet fever, San Leandro.
- 55. Malaria, Los Molinos and Vina.
- 56. Anthrax, Napa.
- 57. Typhoid fever, Floriston.
- 23c. Continuation, hookworm, California.

April—

- 58. Typhoid fever, Bakersfield.
- 59. Scarlet fever, Bakersfield.
- 60. Smallpox, Oakland.
- 61. Amœbic dysentery, Camp Seco.
- 62. Smallpox, Oakland.
- 23f. Continuation, hookworm, California.

May, 1917—

- 63. Malaria, Los Molinos.
- 64. Typhoid fever, Corning.
- 65. Rocky Mountain spotted fever, Palo Alto.
- 66. Scarlet fever, Taft.
- 67. Leprosy, Oakland.
- 68. Leprosy, Richmond.
- 23g. Continuation, hookworm, California.

June—

- 69. Typhus fever, Los Banos.
- 70. Plague, Oakland.
- 71. Plague, Oakland.

July—

- 72. Typhoid fever, Modesto.
- 73. Diphtheria, Crockett.
- 74. Enteritis, Sausalito.
- 75. Epidemic meningitis, United States Naval Training Station, San Diego.
- 76. Bacillary dysentery, Napa.
- 77. Smallpox, Oakland.
- 78. Typhus fever, Riverside County.

August—

- 75a. Continuation, epidemic meningitis, United States Naval Training Station, San Diego.
- 72a. Continuation, typhoid fever, Modesto.

September—

- 79. Typhoid fever, Mokelumne Hill.

October—

- 80. Anthrax, Suisun.
- 81. Diphtheria, Calabasas.

November—

- 82. Typhoid fever, Stockton.
- 83. Acute anterior poliomyelitis, Bay Point.
- 84. Bacillary dysentery, near Winters.
- 85. Typhoid fever, Mendocino County.

December—

- 86. Typhoid fever, Hornitos.
- 87. Yaws, Corning.
- 88. Typhoid fever, Live Oak.

January, 1918—

- 89. Trichinosis, Livermore.
- 90. Leprosy, San Luis Obispo.
- 91. Leprosy, Pittsburg.
- 92. Typhoid fever, Blythe.

February—

- 93. Typhoid fever, San Jose.

March—

- 94. Typhoid fever, San Dimas.
- 95. Smallpox, Oakland.

April—

- 96. Epidemic meningitis, S. S. Anyo Maru.
- 97. Trichinosis, Suisun.

May—

- 98. Rocky Mountain spotted fever, Portola.
- 99. Typhoid fever, Merced Falls.
- 100. Bacillary dysentery, Oakland.
- 101. Bacillary dysentery, Colton.
- 102. Bacillary dysentery, Santa Ana.
- 103. Typhoid fever, National City.
- 104. Smallpox, Colton.

June—

- 105. Smallpox, Oakland.
- 106. Leprosy, Fresno.

TABLE I.—Number of Examinations and Results, July 1, 1916, to June 30, 1918.

Years	Anthrax		Diphtheria		Dysentery (bacillary)		Gonococcus infection		Hookworm	
	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total
July to December, 1916.....	8	42	865	3,442	0	0	52	173	64	1,722
January to June, 1917.....	5	25	579	3,054	0	0	98	254	157	2,000
July to December, 1917.....	70	206	748	3,799	0	4	88	332	1	3
January to June, 1918.....	5	24	868	4,150	10	37	195	510	0	0
Totals.....	88	297	3,060	14,445	10	41	433	1,269	222	3,725

Years	Leprosy		Malaria		Meningitis (epidemic)		Para-typhoid		Plague	
	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total
July to December, 1916.....	0	0	21	93	0	0	0	0	0	0
January to June, 1917.....	0	0	11	78	0	0	0	0	0	0
July to December, 1917.....	0	15	11	100	0	0	0	10	0	0
January to June, 1918.....	1	1	10	96	7	83	0	16	0	0
Totals.....	1	16	53	367	7	83	0	26	0	0

Years	Pneumonia		Rabies		Syphilis		Trichinosis		Tuberculosis	
	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total
July to December, 1916.....	0	0	23	91	109	1,113	0	0	139	445
January to June, 1917.....	0	0	30	79	95	1,197	0	0	125	506
July to December, 1917.....	0	0	14	40	169	1,273	1	2	139	520
January to June, 1918.....	3	3	21	53	401	5,505	2	2	173	679
Totals.....	3	3	88	263	774	9,088	3	4	576	2,150

Years	Typhoid (blood)		Typhoid (excreta)		Miscellaneous
	Positive	Total	Positive	Total	
July to December, 1916.....	129	655	3	68	27
January to June, 1917.....	47	384	9	122	35
July to December, 1917.....	181	721	0	92	67
January to June, 1918.....	100	480	6	42	72
Totals.....	457	2,240	18	324	201

¹Hookworm examinations made by Division of Parasitology since September, 1917.

TABLE II.—Increase in Number of Examinations, July 1, 1905, to June 30, 1918.

Years	Anthrax	Diphtheria	Dysentery (bacillary)	Gonorrhea Infection	Hookworms	Leprosy	Malaria	Measles (epidemic)	Paratyphoid
July, 1905, to July, 1906	0	330	0	0	0	0	0	0	0
July, 1906, to July, 1908	0	1,251	0	0	0	0	0	0	0
July, 1908, to July, 1910	0	2,793	0	0	0	0	56	0	0
July, 1910, to July, 1912	27	2,267	0	46	9	0	88	0	0
July, 1912, to July, 1914	85	3,337	0	353	15	0	194	0	0
July, 1914, to July, 1916	144	10,834	0	747	1,256	0	276	0	0
July, 1916, to July, 1918	297	14,445	41	1,299	3,725	16	367	83	26
Totals	553	35,237	41	2,415	5,005	16	963	83	26

Years	Plague	Pneumonia	Rabies	Syphilis	Trichinosis	Tuberculosis	Typhoid (blood)	Typhoid (excreta)	Miscellaneous
July, 1905, to July, 1906	1	0	0	0	0	54	32	0	96
July, 1906, to July, 1908	13	0	0	0	0	255	186	0	504
July, 1908, to July, 1910	0	0	37	0	0	497	330	0	145
July, 1910, to July, 1912	5	0	243	0	0	716	667	0	60
July, 1912, to July, 1914	7	0	770	142	0	908	1,242	0	150
July, 1914, to July, 1916	4	0	603	2,456	0	1,576	1,927	0	148
July, 1916, to July, 1918	0	3	263	9,088	4	2,150	2,240	324	291
Totals	30	3	1,916	11,686	4	6,086	6,623	324	1,313

*These examinations either listed under "Miscellaneous" or not made previous to this biennial period.

*Hookworm examinations made by the Division of Parasitology since September, 1917.

*Blood and excreta examinations listed together before this biennial period.

Depositories for the Mailing Outfits of the Bureau of Communicable Diseases.

County	Town	Drug store
Alameda	Alameda	Flatow's Drug Store
	Centerville	Greenwood's Pharmacy
	Hayward	Rogers' Pharmacy
	Livermore	McKown & Mess
	Niles	Snedden's Pharmacy
	Oakland	Phillip & Phillip
	Pleasanton	Peter Rock
Amador	San Leandro	A. H. Morris
	Yone	Model Drug Store
Butte	Sutter Creek	Morris & Siebe
	Chico	Ben Hastings Pharmacy
Colusa	Gridley	Gridley Pharmacy
	Arbuckle	Chas. G. Stinson
	Colusa	Oscar Robinson
	Maxwell	Fouch's Drug Store
	Williams	J. F. Fouch
Contra Costa	Antioch	Palace Drug Company
	Concord	C. W. Klein
	Crockett	Crockett Drug Company
	Pinole	Pinole Drug Company
	Pittsburg	Regal Pharmacy
	Richmond	Ferguson's Drug Store
	Richmond	La Molne's Drug Store
	Richmond	Richmond Pharmacy
Fresno	Walnut Creek	Wigets Pharmacy
	Clovis	Clovis Drug Store
	Coalinga	Flintz Drug Store
	Fresno	San Joaquin Drug Company
	Kingsburg	Reliable Pharmacy
	Reedley	Reedley Drug Company
	Sanger	O. A. Brehler
	Selma	Dusey & Sawrie

**Depositories for the Mailing Outfits of the Bureau of Communicable Diseases—
Continued.**

County	Town	Drug store
Glenn	Orland	Birch & Co.
Humboldt	Arcata	Skinner Duprey Drug Company
	Eureka	Keller-Bohmansson Drug Co.
	Fortuna	Bowman's Drug Store
	Scotia	Scotia Hospital
Imperial	Brawley	Fulton's Pharmacy
	El Centro	McColloch Drug Co.
	Holtville	Holtville Pharmacy
	Imperial	Imperial Pharmacy
Kern	Bakersfield	Baer Brothers
	Delano	Ramsay's Pharmacy
	East Bakersfield	Kern Drug Co.
	Taft	Taft Pharmacy
	Tehachapi	Yerlan Brothers
Kings	Corcoran	Corcoran Drug Store
	Hanford	M. M. Bartholomew Drug Store
Lake	Kelseyville	Pond Drug Store
	Lakeport	Meddaugh's Drug Store
	Lower Lake	Dr. H. P. Welper
	Middletown	Middletown Drug Store
Lassen	Susanville	J. B. Spalding
Los Angeles	Alhambra	Central Drug Co.
	Artesia	Artesia Pharmacy
	Azusa	Dolley Drug Co.
	Bellflower	Chas. F. Story's Pharmacy
	Belvedere	The Logan Drug Co.
	Burbank	Burbank Pharmacy
	Claremont	College Drug Store
	Compton	W. E. Dean's Pharmacy
	Covina	W. W. Nash
	Downey	O. W. Heying
	Eagle Rock	Eagle Rock Drug Co.
	El Monte	El Monte Drug Store
	Florence	Florence Pharmacy
	Gardena	Gardena Pharmacy
	Glendale	Glendale Pharmacy
	Hawthorne	Rankin's Drug Store
	Huntington Park	Batcheller's Pharmacy
	Inglewood	Fred J. Fehrensens & Son
	Lordsburg	Kenyon's Pharmacy
	Los Angeles	Cralego's Pharmacy
	Los Angeles	The Logan Drug Co.
	Monrovia	Thos. Neville
	Norwalk	Norwalk Pharmacy
	Ocean Park	Moody's Drug Store
	Palmdale	Palmdale Pharmacy
	Pasadena	The Modern Pharmacy
	Pomona	Campbell & Pierce
	San Dimas	San Dimas Drug Store
	San Fernando	San Fernando Drug Co.
	Sherman	McGoodwin's Drug Store
	Venice	Lutz Pharmacy
Marin	Whittier	Whittier Pharmacy
	Belvedere	Belvedere Pharmacy
	Mill Valley	Lockwood Pharmacy
	San Anselmo	Poppy Pharmacy
	San Rafael	Day's Pharmacy
	Sausalito	Sausalito Drug Co.
Mendocino	Fort Bragg	Pacific Drug Store
	Mendocino	C. O. Packard Drug Store
	Mendocino	Pioneer Drug Co.
	Ukiah	Morris & LeRoy
Merced	Willits	Rex Drug Co.
	Dos Palos	Dos Palos Drug Store
	Los Banos	Thiercof Drug Store
	Merced	Merced Drug Co.
Modoc	Alturas	Gibson Drug Co.
	Cedarville	Cedarville Drug Co.
Monterey	Monterey	Palace Drug Co.
	Salinas	Krough's Drug Store
Napa	Napa	Arighi & Ballerini
	St. Helena	Smith's Pharmacy
Nevada	Nevada City	Dickerman Pharmacy
Orange	Anaheim	Mullinix Drug Store
	Fullerton	Finch's Drug Store
	Orange	K. E. Watson Co.
	Santa Ana	Rowley Drug Store

**Depositories for the Mailing Outfits of the Bureau of Communicable Diseases—
Continued.**

County	Town	Drug store
Placer	Auburn	J. G. McLaughlin
	Colfax	J. L. Butler & Son
	Dutch Flat	Dr. J. H. Johnston
	Lincoln	Ingram's Drug Store
	Loomis	Loomis Pharmacy
Plumas	Quincy	Quincy Drug Store
Riverside	Banning	Banning Drug Store
	Beaumont	Robert Fulton
	Corona	R. F. Billings Estate
	Hemet	Wedemeyer's Pharmacy
	Perris	Perris Pharmacy
Sacramento	Riverside	F. A. Gardner & Co.
	Elk Grove	"Ye Medicine Shop"
	Folsom	S. H. & F. P. Burnham
San Bernardino	Chino	Reher's Pharmacy
	Colton	Colton Pharmacy
	Needles	Needles Drug and Jewelry Co.
	Redlands	Mont P. Chubb Drug Co.
	San Bernardino	Owl Drug Store
San Diego	Victorville	Victor Valley Drug Store
	Chula Vista	Wigginton's Pharmacy
	Coronado	Central Drug Store
	East San Diego	Parkin Drug Co.
	Escondido	Rolfes Drug Co.
	La Mesa	La Mesa Drug Store
	National City	Keller's Drug Store
	Oceanside	Exton & Nichols
	Ramona	Thos. Jerman
	San Diego	Ferris & Ferris
San Joaquin	Stockton	Eagle Drug Store
San Luis Obispo	Arroyo Grande	W. A. Conrad, Jr.
	Cambria	People's Drug Store
	Paso Robles	W. C. Bennett
San Mateo	San Luis Obispo	People's Pharmacy
	South San Francisco	Peninsula Drug Co.
Santa Barbara	Santa Barbara	Sterling Drug Co.
Santa Clara	Campbell	Orchard City Drug Co.
	Los Gatos	Geo. A. Green's Pharmacy
	Mountain View	Winniger & Wagner
	Palo Alto	University Pharmacy
	San Jose	Curtis & Henkle Drug Co.
Santa Cruz	Santa Clara	Madden's Pharmacy
	Santa Cruz	Palmer Drug Co.
	Watsonville	Steinhauser & Eaton
Shasta	Anderson	Black's Drug Store
Sierra	Redding	Powell Pharmacy Co.
	Downieville	Downieville Drug Store
	Loyalton	Loyalton Drug Co.
Siskiyou	Dunsmuir	Red Cross Drug Store
	Etna Mills	W. J. Balfrey
	Slisson	Mt. Shasta Pharmacy
Solano	Yreka	Avery Drug Co.
	Benicia	Benicia Pharmacy
	Dixon	California Drug Store
	Rio Vista	Rio Vista Pharmacy
	Suisun	Whitby & Rutherford
Sonoma	Vacaville	Vacaville Drug Co.
	Vallejo	Vallejo Drug Co.
	Healdsburg	Rathke's Pharmacy
Stanislaus	Petaluma	Young-Herold Drug Co.
	Ceres	Ceres Drug Co.
	Modesto	Maxe Drug Store
Sutter	Newman	Parker Drug Store
	Oakdale	Endicott's Drug Store
	Turlock	Turlock Drug Co.
	Live Oak	Dr. I. W. Higgins
Tehama	Corning	Thompson's Drug Store
	Red Bluff	Elmore Pharmacy
Trinity	Weaverville	Dr. D. B. Fields
Tulare	Dinuba	McCracken's Pharmacy
	Exeter	Mixter Pharmacy
	Lindsay	Lindsay Drug Co.
	Orosi	H. L. Huntington
	Porterville	Claubes Pharmacy
	Tulare	Corner Drug Co.
	Visalia	The Visalia Drug Co.
	Woodlake	Woodlake Drug Co.

**Depositories for the Mailing Outfits of the Bureau of Communicable Diseases—
Continued.**

County	Town	Drug store
Tuolumne	Sonora	Union Drug Store
	Tuolumne	Bigelow's Drug Store
Ventura	Nordhoff	Ojal Drug Store
	Santa Paula	Cauch's Drug Store
	Ventura	Pioneer Drug Store
Yolo	Davis	Campbell's Pharmacy
	Winters	Day's Drug Store
	Woodland	John V. Leithold
Yuba	Marysville	Rubel's Drug Store
	Wheatland	Rooney's Drug Store

REPORT OF THE DIVISION OF ENTOMOLOGY.

By STANLEY B. FREEBORN, Acting Consulting Entomologist.

At the recent reorganization of the Bureau of Communicable Diseases it was deemed advisable to change the title of Consulting Parasitologist to that of Consulting Entomologist, so that the work hereafter described is that of the old Division of Parasitology now known as the Division of Entomology.

The work performed by the Consulting Entomologist consists largely of lectures, consultations and field and laboratory work. This work is done in co-operation with the College of Agriculture of the University of California, which has at all times very gladly furnished the services of the men doing the work. This combination of co-operation seems particularly fitting when we realize that the principal fields of endeavor of this division, the control of malarial mosquitoes and other insect and arachnid carriers of disease, are largely rural in their scope, with the result that their control means not only better health but better agriculture as well.

During the summer of 1916 Professor W. B. Herms, then Consulting Parasitologist, assisted by the writer, undertook a survey of northern California to determine the prevalence of anopheline mosquitoes in that part of the state. It was found that malarial mosquitoes were more widely distributed than had previously been supposed. All the counties in the northern part of the state were carefully covered and anophelines were taken in every county except Del Norte and at varying altitudes from sea level at Mare Island to 5,482 feet at Sierraville. In 1917 it was planned to complete the survey of the state by covering the southern half, but after a few weeks' work which disclosed conditions very similar to those found the year before in northern California it was deemed wise to discontinue the survey temporarily to co-operate with the Department Surgeon's office of the Western Department of the U. S. Army in a tour of inspection of camp sites located in California, devoting attention to the main sanitary features of the camps with particular emphasis on fly and mosquito control. This work took up the remaining time for the summer, although the work of the survey was augmented from time to time through the fall by week-end trips. In February, 1918, Professor Herms, the Consulting Entomologist, was called into the service as a captain in the Sanitary Corps of the National Army and the writer appointed as Acting Entomologist in his absence.

It was again planned for the present summer to finish the work of the mosquito survey of the state in order that our data might be complete.

It was found necessary, however, to temporarily abandon that work to undertake the more important task of supervising the control work being done in Los Angeles and Long Beach to check the salt marsh mosquitoes that were infesting the shipyards and fish canneries in that locality. In May of the present year the writer, associated with Mr. Edward T. Ross, the chief sanitary inspector for the State Board of Health, and assisted by Mr. Rodney F. Atsatt, a voluntary inspector for the board, took charge of the work to be done in the Harbor District of Los Angeles and Long Beach. We arrived too late to check the May brood that emerged three days after our arrival, but succeeded in practically eliminating the June brood. During the conduct of the work we took especial pains to instruct local men on all the technical points, with the result that after five weeks' intensive work we controlled the situation and trained competent local men to carry on the work after our departure with the same optimum results. I speak of this particular case in detail because it shows the advantage to be gained by personal supervision of the work to be done until such time as local men are able to carry it on just as successfully. This was our first opportunity to do this, for lack of time and funds has always made it imperative for us to visit a location, leave recommendations and trust the actual work to local authorities who may or may not have understood exactly what was needed. In this instance we had the opportunity to start the work along technically correct lines, demonstrate the possibility of actually controlling the mosquitoes and at the same time train local men to meet the situation after our departure.

Our survey work to date has pointed out one fact that I hope may lead to further investigations that may be of decided advantage in our malarial work. The anophelines are much more widely distributed than is malaria. With our present knowledge, however, we are forced to look upon every anopheline-infested district as a possible focus of malaria should carriers be introduced. Nevertheless there are many points in California where both carriers and anophelines (species capable of transmitting malaria in other sections) are present with an entire absence of endemic malaria. I hope to be able in the near future to have an opportunity to study this question in the field, for the determination of the factors governing the transmission of malaria by our anophelines would be of decided advantage, as we would be able to state whether the presence of anophelines in a given locality indicated danger from malaria or not, instead of considering dangerous all localities where anophelines occur in spite of the fact that endemic malaria has never resulted from their presence, although carriers were present.

Another research problem that would undoubtedly lead to very practical results would be a study of the complex that furnishes the breeding ground for the anophelines. There are very definite kinds of situations in which anophelines will breed. So characteristic are these pools that a trained observer can almost always prophesy the presence or absence of anophelines by merely glancing at the pool. It is barely possible that if we knew the factors that make certain pools attractive to anophelines, we might be able to alter them very simply and prevent further infestation.

The Mosquito Abatement Districts Bill has enabled a number of communities to organize antimosquito campaigns. Since June, 1916,

six new districts have begun to operate, while as many more are in the process of formation. An account of the formation of these districts is printed in the Bulletin of the California State Board of Health for April, 1918. Previous to the passage of this bill, antimosquito campaigns depended on the subscriptions and personal enthusiasm of a few public-spirited citizens of a given territory who realized the benefits to be accrued through systematic mosquito control. This type of finance and administration seldom proved effective, however, due to the inability to undertake the work on an extensive scale and the waning enthusiasm of the backers, who tired of financing a project for their neighbors' benefit without the latter's aid. In this way the passage of the Mosquito Abatement Districts Bill was a distinct step in advance, for it provided for the collection of a definite amount of money that could be accurately budgeted and also furnished a means of administration. It is of course very difficult to make a general statement relating to the amount of money necessary to control mosquitoes, for conditions vary in different parts of the state and with different species of mosquitoes, but an average of a large number of campaigns in California shows that \$250.00 per square mile per year is the average cost, decreasing somewhat with succeeding years as permanent control is inaugurated. This cost in order to be met through the medium of the Mosquito Abatement Districts Bill, which limits the taxation to ten cents on a hundred dollars, requires therefore an average valuation of nearly \$400.00 per acre. As improved agricultural land in California averages \$180.00 per acre, it is consequently necessary in almost every case to include a municipality in the district in order to raise sufficient funds to insure success. The anopheline or malaria-bearing mosquito is largely rural and malaria consequently a rural disease, but here where the need for control is the most urgent the present bill offers very little help. A modification of the bill to provide for a higher tax rate is not to be considered, for the added taxes would be oppressive as well as prohibitive. The only solution seems to be some form of state aid, either in the form of direct funds or intensive supervision. Another point in connection with the mosquito abatement districts concerns the attitude of the State Board of Health. When a community intimates the possibility of the formation of a district, a representative of this division generally visits the territory, outlines the boundaries of the district, makes a public address on the desirability of the project, the Utopian results to be gained and the method of procedure. Under the present system time is not available to do more, with the result that enthusiasm wanes or if the district is actually started it is very possible that poor management squanders or wastes the money without producing results, and the State Board of Health as the instigator of the project is blamed for the failure with the attendant loss of prestige. If it were possible for this division to actually have a representative who could stay with a district during its process of formation and later to start the work along the proper lines and train the local officer much of the disfavor that has fallen upon the advisability of forming districts would be eliminated.

REPORT OF THE DIVISION OF PARASITOLOGY.

By WILLIAM W. CORT, Ph.D., Consulting Helminthologist.

Introduction.

California, on account of a semi-tropical climate and a close relation to oriental and tropical countries, must take measures for protection against the introduction and spread of diseases caused by animal parasites. In recognition of this fact the Division of Parasitology (at first called the Division of Biology) of the Bureau of Communicable Diseases was established in June, 1917, to take up the problems, related to the diseases caused by intestinal parasites, of man in California.

Two laboratories and an office were set aside for this division by the University of California in connection with the Department of Zoology in East Hall on the University Campus. Dr. C. A. Kofoed, Professor of Zoology, was appointed Consulting Biologist and Dr. W. W. Cort, Assistant Professor of Zoology, Associate Biologist. Later when the name of the division was changed to the Division of Parasitology these titles were changed to Consulting Parasitologist and Consulting Helminthologist. In February, 1918, Professor C. A. Kofoed received the commission of Major in the Sanitary Corps of the United States Army and was given leave of absence by the Board of Health for the duration of the war.

The relation to the Department of Zoology of the university is of value to the Division of Parasitology not only because it gives the State Board of Health the services of men in the Department of Zoology and the use of the laboratories and certain equipment, but also because it correlates with the practical work of the division researches which are being carried on in the Department of Zoology in protozoology and helminthology.

The program of the Division of Parasitology includes the investigation of diseases of man in California caused by intestinal parasites, and the control and eradication of such diseases wherever found. During the first year most of the time of the division was given to the campaign for the eradication of hookworm from the mines of California, which had been carried on for the two previous years under the direction of the State Hygienic Laboratory. Besides the hookworm campaign the division has started work on general problems of parasitic infections among the oriental and Mexican elements of the population of California. The Division of Parasitology is especially equipped for the making of diagnoses by fecal examinations. Experimental work, related to hookworm in mines, has also been taken up as part of the program of the division.

Hookworm Campaign in the Mines of California.

In September, 1917, the campaign for the eradication of hookworm in the mines of California, which had been carried on for two years by the State Hygienic Laboratory, was turned over to the Division of Parasitology. This work has taken up most of the time and energy of the division since that time.

The program followed in the first two years of this work has been carried out with some modifications. The program of the hookworm campaign is as follows:

- (1) To make fecal examinations of all miners in regions where hookworm has been found to exist;
- (2) To make preliminary surveys in new mining regions to determine whether foci of infection of hookworm diseases are present;
- (3) To make arrangements for treatment of infected men;
- (4) To re-examine treated men;
- (5) To give wide publicity to sanitary measures which will prevent the spread of hookworm;
- (6) To carry on experimental investigations in relation to the problem of hookworm in mines.

Whatever progress has been made has been possible on account of the co-operation of a number of different agencies; the State Compensation Insurance Fund by assuming the responsibility for treatments in mines which it insures has made possible a large proportion of the treatments. The Industrial Accident Commission has rendered important service in publicity through its various agents, has co-operated in mine inspection and has furnished much valuable information. The California Metal Producers Association by its endorsement and active co-operation in the work has done much to secure the co-operation of the mine operators and superintendents. The Federal Bureau of Mines, through the Bureau of Mines Car, No. 1, has given service in publicity and has made possible the making of surveys in a number of new regions. The great majority of mine operators and superintendents have co-operated cordially in the work and the attitude of most of the miners has been favorable, whenever they were made to understand the exact significance of the work.

Record of Hookworm Examinations and Treatments According to Counties.

Counties	Total examinations	Positive	Treated	Re-examinations		Positives gone before treatment
				Plus	Minus	
Amador County	1,465	264	85	25	19	75
Calaveras County	401	12	4	1	1	1
Inyo County	24	1	0	0	0	-----
Kern County	24	0	0	0	0	-----
Nevada County	233	0	0	0	0	-----
San Bernardino County	19	0	0	0	0	-----
Shasta County	28	0	0	0	0	-----
Tuolumne County	131	11	9	6	3	4
Examinations from towns near mines	25	0	0	0	0	-----
Totals	2,350	288	96	32	23	80

The table, which is included, gives an idea of the extent of the examinations and treatments for the year. The attempt has been made to make the surveys in Amador, Calaveras and Tuolumne counties as complete as possible. The unsettled conditions of labor and the resulting rapid shifting of miners has made it impossible to complete the survey of a mine at any given time. Whenever possible, arrangements have been made with the mines, after the completion of the initial survey, to send samples from all new men. The examinations recorded

for the three counties, especially Amador, represent a very large proportion of all the miners. The surveys outside of these counties are more scattered and represent attempts to locate scattered foci of infection. An analysis of the table is very encouraging, since it indicates that hookworm in California is probably localized in a limited region and not widespread in the mining regions of the state. This supposition is also supported by data from the first two years of the campaign and a review of conditions in mines in other parts of the state.

Reasons for this localization are complex and probably depend upon the physical and chemical conditions of the mines underground, the characteristics of the men employed and the underground sanitation of the mines with respect to soil pollution. An analysis of the past history of the positive cases in Calaveras and Tuolumne counties showed that most of them had recently come from heavily infected mines in Amador County in which there is evidence that hookworm has become endemic. This condition of things is encouraging, for it suggests that by intensive work in these infected areas it may be possible to eradicate entirely hookworm disease from the mines of the state. It is, of course, possible that the more extended survey which is being carried on will show new foci of this disease in mines in other parts of the state.

The fact that the State Board of Health does not have direct control over the treatment of hookworm cases found in the mines has made it impossible to complete this phase of the work as rapidly and completely as the examinations. The treatments have been carried out through the agency of the State Compensation Insurance Fund, other insuring bodies or, in some cases, by the mines themselves.

Re-examinations to determine the success of the treatments have been made whenever possible. This phase of the work is being pushed energetically at the present time and it is expected that a much larger proportion of the infected men, listed in the report, will be treated and re-examined in the next few months. This part of the work has been greatly handicapped by the restlessness and shifting of the miners. A considerable portion of the infected men, as shown by the table, moved away before treatment or between treatment and re-examination. This escape of infected men before cure is a serious matter in relation to the spread of the disease and attempts are being made to trace them. It seems probable that a number of these men moved after they found that they were infected to escape treatment.

The series of fecal examinations recorded from the families of miners and other individuals residing close to infected mines, but not going into them, is significant. So far in our examinations and in those of the previous two years there is no evidence that the hookworm disease has ever been contracted in these regions except by men who go underground in the mines or who handle material from the mines. This supports the view that hookworm in the mines of California is an occupational disease depending for its spread upon peculiar conditions underground in these mines, and is not a menace to the general population of the surrounding districts.

The publicity work of the campaign has been carried on for the purpose of informing the mine operators and miners in regard to the importance of the work, and with a view to the improvement of underground toilet systems of the mines in order to prevent soil pollution. The attempt has been made to bring the importance of the hookworm

to the miners and mine operators by correspondence with mine operators and superintendents, by lectures and talks on the hookworm and by personal interviews between the field agent of the Division of Parasitology and mine superintendents and men. The Bureau of Mines car, No. 1, carried a hookworm exhibit in California and a first-aid instructor of the Industrial Accident Commission has included a short lecture and exhibit on hookworm in his course. In fact, the methods of the hookworm campaign are becoming very widely known in the regions where the work has been intensively carried on, and a widespread interest has been created in the campaign.

Since hookworm can be spread only by soil pollution in the mines, the improvement of the underground toilet systems of the mines in the hookworm district is a most important step in the eradication of the disease. Inspections of underground toilets in the mines have been made by inspectors of the Industrial Accident Commission, by the District Health Officer and the field agent of the Division of Parasitology. Recommendations for improvements have been made when needed. Since it was found that it was difficult to find on the market a suitable underground mine toilet, a seatless toilet was devised by the Division of Parasitology and the Bureau of Sanitary Engineering. A model of this toilet was exhibited on the Bureau of Mines car while in the hookworm district and blueprints and photographs have been sent out to a number of mine superintendents. Another underground toilet devised by the superintendent of one of the mines to protect his mine against the spread of hookworm has also been given publicity. Blueprints of this toilet and an account of the sanitary arrangements in this mine have been distributed to mine superintendents. Special Bulletin No. 28 of the State Board of Health, "Mine Sanitation for the Prevention and Eradication of Hookworm Disease," is devoted to this subject and has been widely distributed to mine superintendents throughout the state. As a result of these efforts and those of the first two years of the campaign, marked improvements in the underground toilets of the mines have been made all through the hookworm district. Also there is developing a strong feeling, not only among mine superintendents but also among the men, against soil pollution in the mines.

Certain important researches in connection with hookworm in mines have been made a part of the program of the division. A series of experiments is nearing completion on the effect of common salt on hookworm eggs and larvæ, to determine its value as a disinfecting agent. These experimental studies will soon be ready for publication. They show that common salt will, in sufficient quantities, kill the hookworm larvæ, and that it is of value in disinfecting small highly infected areas of mine soil. Experiments are also under way on the effect on the development of hookworm of water containing copper salts.

Other Activities.

Although the hookworm campaign has taken up most of the time of the Division of Parasitology since its organization, certain other projects have been undertaken. A number of fecal examinations have been made for physicians of the state. Most of these examinations have been negative, but the monthly reports of the division show cases of *ascaris*, *trichuris*, *oxyuris*, *dibothriocephalus*, *schistosma japonicum*, *Entamoeba*

coli, *Strongyloides stercoralis* and *hymenolepis*. It is expected that an increasingly large number of physicians will take advantage of the opportunity for fecal diagnosis afforded by the division.

The first project undertaken by the Division of Parasitology was that of fecal examinations to determine the prevalence of hookworm and other parasitic infections among the Mexican populations of the state. A total of seventy-four fecal examinations for parasitic worms were made from Mexican laborers near Los Angeles. These examinations were all negative except two cases of the dwarf tapeworm, *hymenolepis*. This work was not continued, on account of taking over the hookworm campaign in the mines. The problem, however, demands further attention and is on the program of the Division of Parasitology.

There is a considerable amount of evidence that the protozoan dysenteries are more widely spread and of greater significance to California than is ordinarily believed. Last summer an attempt was made to discover whether cases of summer complaint, prevalent in California, were due to parasitic flagellate. No positive results were obtained in this investigation. What few examinations for protozoa which have been made have shown only a percentage of *entamoeba coli*. The presence of amebic dysentery in California has been long known through scattered case records. In the last few months an investigation has been carried on to determine the amount of this infection in the hospitals of the state. The investigation is still incomplete, but the records so far gathered show that numbers of cases of amebic dysentery are treated in our hospitals each year. Most of these appear to have originated outside of the state, in the Philippines, Hawaii, Mexico or other parts of the tropics or Orient. These records, however, show some cases which have undoubtedly originated in California. Further work is planned for the future in connection with the prevalence of this disease.

The parasitic diseases of the immigrants from oriental countries offer important problems to the health of the state. This whole question is practically uninvestigated. It is known, however, that numerous cases of parasitic disease have been brought into the state by entering immigrants. There is practically no evidence in regard to the prevalence and spread of these diseases at the present time. The Division of Parasitology is attacking this important problem. Special Bulletin No. 29, "Dangers to California from Oriental and Tropical Parasitic Diseases," was written to bring this matter to the attention of the physicians of the state. Data and case records are also being gathered on this subject. The division further plans to make fecal examinations this fall of orientals from the "Delta" region and rice fields.

LABORATORY TECHNIQUE.

ANTHRAX.

A diagnosis of anthrax is given only when microscopical and cultural examinations are confirmed by animal inoculation.

If the specimen received is dried blood it is emulsified in salt solution; if an ear, a vein is dissected out so as to obtain the blood; if tissue, other than an ear, the surface is seared, an incision made so as to avoid surface contamination, and a small particle removed and emulsified in salt solution.

Microscopical examination.—Direct smears from blood or tissue stained with methylene blue show bamboo-like rod-shaped bacilli.

Cultural examination.—A tube of nutrient broth is inoculated with the blood or tissue emulsion obtained as stated above. Three tubes of agar are inoculated with the same material, making three dilutions (loop method), and plates poured. After twenty-four hours incubation the broth is examined for the typical stringy cottonlike growth in the bottom of the tube and the agar plates for the furlike filamentous colonies.

Animal inoculation.—One to two cc. of a saline emulsion of blood or tissue are inoculated intramuscularly or subcutaneously into a guinea pig. If the guinea pig dies cultures are made from the heart blood into broth and agar as above. After twenty-four hours incubation these cultures are examined, smears are made from typical colonies, and if Gram positive, square-ended bacilli in chains with spore forms are found a diagnosis of anthrax is given.

BOTULISM.

The technique used in this laboratory for the identification of *B. botulinus* is that recommended by Dr. Ernest C. Dickson and is as follows:

In examining fruits and vegetables the juice is centrifuged and the sediment is examined for spores. In examining organs of chickens, tie off the crop and gizzard, add the contents to sterile water, and incubate to develop spores. Glucose broth, brain and glucose agar are inoculated with large amounts of the suspected material; immediately before inoculating, both suspected material and culture media are boiled for at least ten minutes. The fluid media, broth and brain can be quickly cooled by plunging into tap water, but the agar is cooled only to about 45° C. so that the material can be thoroughly mixed with the fluid agar. Paraffin or paraffin oil is used to seal the media to insure anaerobic conditions. All culture tubes are incubated at from 26–28° C., the optimum temperature of *botulinus* bacilli.

The points essential for the identification of *B. botulinus* are the following:

1. Demonstration of large Gram positive bacilli with rounded ends and terminal spores.
2. Anaerobic growth of characteristic appearance in glucose agar cylinders with formation of gas and fragmentation of the medium.
3. Blackening of brain medium.
4. Characteristic growth in glucose infusion broth with the production of a virulent toxin demonstrable in filtered broth by subcutaneous inoculation into guinea pigs. One cubic centimeter of the broth is used. The animal dies in twenty-four hours. There is first a collapse and the legs are sprawled straight out. At autopsy the brain is hemorrhagic.

Glucose agar cultures are examined for characteristic colonies in forty-eight to seventy-two hours, but if negative are not discarded for at least two weeks. Glucose broth cultures are allowed to incubate for about one month before they are discarded. Cultures of *B. botulinus* have the characteristic odor of rancid butter due to the production of butyric acid.

DIPHtheria.

Swabs from the throat and nose are sent to the laboratory for diphtheria examinations. The swabs are planted on Loeffler's blood serum and after about sixteen hours incubation smears are made, air dried, fixed by heat and stained with modified Ponder's stain. The formula for the stain is as follows:

Toluidin blue	1.0 gm.
Alcohol, 95 per cent.....	10.0 c.c.
Glacial acetic acid.....	25.0 c.c.
Distilled water	500.0 c.c.

The fixed smears are immersed in this stain in staining jars for at least five minutes. There is no danger of overstaining. A positive diagnosis is made on finding granular, barred or solid diphtheria bacilli. The granular types show purple metachromatic granules with a blue body; the barred types show blue bars with deeper staining poles, and the solid types show blue bodies with characteristic grouping. Practically all organisms except diphtheria bacilli and certain cocci take this stain very faintly so that the diphtheria organisms stand out against a faint blue background and are not confused with *B. hoffmanni* or *B. xerosis*.

DYSentery.

From a specimen of feces to be examined for dysentery bacilli, mucous flakes are fished and dallied out on plates of eosin methylene blue lactose agar made according to the following formula:

Meat infusion (10 lbs. of veal to 15 liters of distilled water).	
Peptone	1 per cent
Sodium chloride	5 per cent
Agar (sheet)	2 per cent

Adjust first to +0.5 to phenolphthalein, then to 6.6 H.P., using dibromothymolsulphonaphthalein as an indicator and adjusting to that point which gives a grass green shade. This shade has been shown to be 6.6 on the hydrogen ion scale.

Add to the sterilized medium:

Lactose	1 gm. per 100 c.c.
0.2 per cent aqueous solution eosin	2 c.c. per 100 c.c.
0.5 per cent aqueous methylene blue	2 c.c. per 100 c.c.

Sterilize five minutes in the Arnold, cool before pouring plates.

Transfer a small flake of mucus to the first plate, add about two drops of saline, spread over the entire surface with a dalli; then carry on to three or four plates, using the same dalli. Incubate twenty-four hours. Dysentery colonies are transparent, moist, with a slightly flattened surface and have a faint purple color. Coli colonies have deep purple opaque centers.

The suspicious colonies are planted onto agar slants and the following sugars: lactose, mannit, dextrose and maltose.

Dysentery bacilli give acid in dextrose, but not in the other sugars.

Paradysenteries give the following reactions:

	Hiss-Russell	Flexner
Lactose	no acid	no acid
Saccharose	no acid	acid
Mannit	acid	acid
Dextrose	acid	acid
Maltose	no acid	acid

A Gram negative nonmotile bacillus is grouped according to the fermentation reactions and agglutinated with the specific serum.

GONOCOCCUS INFECTION.

Smears received at the laboratory are stained by Gram's method. If two smears from the same source are received one is stained with methylene blue for morphology.

The formulæ of the Gram's stain and technique used are as follows:

Carbol gentian violet:	
Saturated alcoholic gentian violet	10 c.c.
Phenol 2 to 2.5 per cent	100 c.c.
Gram's Iodine:	
Iodine	1 gm.
Potassium iodid	2 gms.
Distilled water	300 c.c.
Counter stain:	
0.5 per cent aqueous solution of safranin.	

Stain the smears with carbol gentian violet one minute; wash off excess of stain with water, add Gram's iodine for one minute, decolorize with 95 per cent alcohol until purple color disappears. Counterstain with safranin one minute.

Positive laboratory findings are based upon the presence of intracellular Gram negative diplococci.

Inconclusive findings are based upon the presence of extracellular Gram negative diplococci or upon the presence of very many pus cells.

HOOKWORM AND OTHER INTESTINAL WORMS.

For routine diagnosis of suspected intestinal worms the centrifuge method is most satisfactory. A piece of feces about the size of a walnut is stirred thoroughly in about five times its bulk of filtered water. A cyclone mixer of the type used in soda fountains may be employed to ensure thorough mixing. This mixture is then filtered through a piece of cheesecloth to remove coarse particles. The residue on the cheesecloth should be examined for tapeworm proglottids or whole round worms. The mixture is then centrifuged to get rid of the lighter particles, oils, etc. The centrifuging should be repeated three times. After each time the liquid should be poured off and the residue mixed with filtered water. Ten to fifteen seconds at a speed of one thousand revolutions per minute is enough to throw down the eggs.

This residue which contains parasite eggs, mixed with the heavier particles, must be spread out on a slide for study in sufficient water so that the material will not be too dense for microscopic examination. A medium power of the microscope is used and a mechanical stage, so that all parts of the preparation can be examined. Two or three preparations, depending on the size of the cover glasses, should be examined from each case before making the diagnosis.

INTESTINAL PROTOZOA.

The diagnosis of intestinal protozoa is made by examination of feces. If fecal material can be obtained in fresh condition the simple smear method is best. A small piece of the feces is smeared on a slide with a toothpick or similar instrument. Three slides should be made for each case. If the stool is solid at least one slide should be made from slime on its surface. The material on the slide can be thinned to the proper consistency for examination with filtered water. The preparation is then covered with a thin cover glass and examined with the high power of the microscope. The use of the mechanical stage makes it possible to cover all parts of the field. Intestinal flagellates and amœbæ or their cysts can be distinguished in such a preparation. Diagnosis by this method is safe only with fresh material, since parasitic protozoa disintegrate rather quickly.

When fecal specimens are to be sent to the laboratory from a distance a special outfit is sent out, viz: a small wide-mouthed bottle partly filled with Schaudinn's fluid (one part absolute alcohol and two parts saturated solution of mercuric chloride) and six cover glasses. To make the preparation on these cover glasses a small amount of the fresh stool is placed between two of the cover glasses so that it will spread out in a thin film over their surfaces; the cover glasses are then separated and dropped into the Schaudinn's fluid, which has been heated to 50° to 60° C. Six cover glasses from three different parts of the stool should be prepared in this way. The cover glasses are left in the fixing fluid for shipment but should be shipped immediately. In the laboratory these fixed smears are first washed in 50 per cent alcohol and are then transferred to a 70 per cent alcohol to which a sufficient amount of tincture of iodine has been added to give it the color of port wine. The smears are then run through the grades of alcohol down to water, placed in 1 per cent iron alum for from one to two hours and stained in 0.5 per cent aqueous solution of iron hæmatoxylin. If the stain is too heavy the preparations may be decolorized in the 1 per cent iron alum. They are then washed, run up through the grades of alcohol to 100 per cent and then to xylol and finally mounted in balsam. This gives a permanent preparation which can be examined with the oil immersion lens if necessary.

LEPROSY.

Smears for microscopical examinations for leprosy are stained in the following manner:

Flood the slide with carbol fuchsin and heat gently over a small flame until it steams for about 3-5 minutes.

Decolorize about 30 seconds with acid alcohol.

Wash in water and counterstain with Loeffler's methylene blue.

The formulæ for the stains used are as follows:

Carbol fuchsin;

Saturated alcoholic basic fuchsin..... 10 c.c.

Phenol 5 per cent..... 90 c.c.

Acid alcohol;

Nitric acid concentrated..... 3 c.c.

Alcohol 95 per cent..... 97 c.c.

Loeffler's methylene blue;

Saturated alcoholic methylene blue..... 30 c.c.

1/10,000 solution potassium hydroxide..... 100 c.c.

MALARIA.

Blood smears to be examined for malaria are stained with Wright's stain. At least one-half hour, and usually much longer, is spent searching for malarial parasites before a negative report is given.

MENINGITIS (EPIDEMIC).

Spinal fluids sent to the laboratory for examination for epidemic meningitis are centrifuged, the sediment smeared on slides, air dried, fixed with heat, and stained by Gram's method. Gram negative intracellular diplococci are searched for and if found a tentative positive report is given. If the spinal fluid is suitable it is plated on sheep serum-dextrose agar and examined by the same procedure as nasopharyngeal smears, the technic of which is as follows:

Nasopharyngeal swabs are taken on wires bent at an angle of about 45°. The swab should be taken by a specialist so that contaminating organisms from the mouth may be reduced to a minimum. Effective results depend upon taking swabs at or very near the laboratory so that they may be planted on to warm plates and immediately placed in the incubator.

As soon as the swabs are taken the mucus is deposited at the edge of a sheep serum-dextrose agar plate, the medium being made according to the following formula:

Ordinary 3 per cent veal agar containing 1 per cent peptone and 0.5 per cent sodium chloride.

Dextrose, 1 per cent.

Adjust reaction carefully to 0.4 acid to phenolphthalein (cold titration).

To 500 c.c. of perfectly clear agar add 100 c.c. of sheep serum water made by mixing one part of perfectly clear fresh sheep serum with three parts of distilled water. Sterilize in the autoclave forty minutes at 15 pounds pressure.

After depositing the mucus on a plate, a bent sterile glass rod is used to spread it. If the culture is properly taken one plate is sufficient, but it is better to use two. Plates should be placed in the incubator at once.

At the end of twenty-four hours incubation the plates are looked over and suspicious transparent pearly-gray colonies with regular margins are marked, smears are made and stained by Gram's method. Colonies showing a Gram negative diplococcus are planted onto carbohydrate sheep serum agar slants, prepared as follows:

3 per cent sheep serum agar, as above.

Andrade's Indicator 1 c.c. per 100 c.c. medium.

1 per cent carbohydrate, using the following: glucose, maltose, saccharose, levulose, galactose.

It may be advisable at times to plant from the colony onto egg medium slants, and from this transplant onto the carbohydrates. The egg medium is made as follows:

Eggs are washed thoroughly with soap and water. Break the shell and stir yolk and whites very thoroughly. Strain through sterile cheese cloth and distribute by means of sterile funnels into small test tubes. Heat slowly to 70° C. to expel the air. Solidify at a temperature of 75° C. Sterilize on two consecutive days in Arnold steamer at a temperature of 90-100° C.

Those Gram negative diplococci fermenting only maltose and dextrose are agglutinated with a known antimeningococcic serum in dilutions of 1/100 and 1/200.

PLAGUE.

If the case is bubonic plague make smears and cultures from material drawn from a bubo with a hypodermic syringe, if pneumonic plague, from the sputum, and if septicæmic plague, from the blood.

Smears are stained with carbol Thionin or dilute Gentian violet and show typical coccobacilli with the characteristic bipolar staining and involution forms. These involution forms, associated with the typical bacilli, are diagnostic.

Tubes of plain agar, 3 per cent salt agar and tubes of broth, with a few drops of oil on the surface, are inoculated with the suspected material. Smears from the growth on plain agar show small typically slender rods—not coccoid bacilli; smears from salt agar, the involution forms, while in the broth culture is found the characteristic stalactite growth, hanging from the under surface of the oil.

Two guinea pigs are always inoculated—one by smearing the material on the closely shaven skin of the animal and a second one subcutaneously by pocket inoculation. Inoculated animals are housed in flea-proof containers and are closely watched for a period of fifteen days.

All animals, whether dying or killed within fifteen days, are posted and the diagnosis confirmed by the macroscopic lesions such as buboes, enlarged spleen, nodular spleen or hemorrhagic conditions, as well as by the microscopic examination of the spleen and heart blood and by cultures.

PNEUMONIA—TYPE DIAGNOSIS.

The culture method used in this laboratory is that of Avery with a modification suggested by Dr. K. F. Meyer, consulting bacteriologist of the bureau.

Several kernels are selected from the specimen of sputum; these are washed four times in sterile saline and are then ground in a sterile mortar with sterile sand. After the sputum is well broken up about 1 c.c. of broth is added and after mixing thoroughly the supernatant fluid is drawn off with a capillary pipette. This is discharged into a tube of glucose blood broth and incubated for five hours in the 37° C. water bath or in the incubator over night. At the end of this time, smears are made and stained with Gram's and Hiss' capsule stains. If a good many organisms are present the specimen is centrifuged at low speed (if the red blood cells have settled out during incubation this is not necessary). The clear fluid is pipetted off and centrifuged at high speed; the supernatant fluid is drawn off and the sediment resuspended in sterile saline until the resulting suspension is turbid.

Agglutinate this antigen with known Types 1, 2, and 3 pneumococcic antisera using 0.3 c.c. of undiluted serum and 0.3 c.c. of the antigen. Incubate in the water bath at 37° C. for one hour. Put in the icebox over night. Before reading the results in the morning, allow the tubes to stand at room temperature for about thirty minutes.

In order to avoid cross agglutination, if this occurs, 0.5 c.c. amounts of the antigen, or suspension of suspected pneumococci, are set up with 0.5 c.c. amounts of the following dilutions of the antipneumococcic sera,

serum I, 1 to 20, serum II, undiluted, serum II, 1 to 20 and serum III, 1 to 5.

When setting up the agglutinations make a bile control by adding 0.1 c.c. of bile to 0.5 c.c. of broth culture. Plate out after twenty minutes on blood agar to see if the organisms present are bile soluble.

It is well to plate out from the original specimen or from enrichment medium (glucose blood broth) on blood agar. Pick suspicious colonies after twenty-four hours incubation. Identify by Gram's and Hiss' capsule stains.

The above culture method of identifying the pneumococcus should be confirmed by mouse inoculation when possible.

RABIES.

Heads of suspected animals are opened and the hippocampus and a part of the cerebellum are removed. A small piece of the center of the hippocampus, taken out by cross sectioning the same, is pressed out between two slides.

These smears are allowed to air dry, fixed by heat and stained with a modification of William's stain:

Saturated alcoholic methylene blue.....	5 drops,
Distilled water	10 c.c.
Saturated alcoholic fuchsin.....	3-5 drops,
or until stain is slightly reddish purple.	

The slides are covered with this stain, warmed slightly over a small flame, and then washed and dried.

Microscopical examinations are made for the presence of Negri bodies. These are magenta colored, sharply outlined, regular bodies, containing blue granules. It is always preferable to find intracellular Negri bodies if possible before giving a positive diagnosis. (At least six to eight slides or more are examined before a negative report is given.)

Negative specimens are no longer inoculated into animals as the length of time for the development of symptoms is too great to allow a person who has been bitten to wait for treatment. Therefore all persons who have been bitten by animals are advised, in case Negri bodies are not found, that the question of treatment must be decided on the symptoms of the animal at the time of the biting.

ROCKY MOUNTAIN SPOTTED FEVER.

Blood from a suspected case is drawn from a vein, immediately added to a 10 per cent sodium citrate solution in the proportion of 9 to 1 and thoroughly mixed; 1 to 5 c.c. of the citrated blood are inoculated intraperitoneally into male guinea pigs. The temperature of the guinea pigs is taken before inoculation and twice daily afterward. A positive report is given if the inoculated animal shows the characteristic temperature curve and scrotal swelling and hemorrhage.

SYPHILIS.

Reagents—All glassware must be free from acid or alkali, as acidity or alkalinity give false reactions. All glassware is rinsed in 1 per cent hydrochloric and then in distilled water and sterilized.

Serum—The specimens to be tested are sent to the laboratory in an outfit containing two small sterile vials. As it is requested that the

serum be removed from the blood clot, one vial is for the blood and the second for the serum. No bleeding of persons is done at the laboratory.

Antigen—The antigen is Noguchi's acetone insoluble fraction of beef heart prepared as follows: Finely minced beef heart is weighed and covered with ten times the weight of 95 per cent alcohol; the mixture is placed in the incubator at 37° C. for about two weeks and shaken vigorously twice daily. Filter through filter paper and evaporate to dryness. The residue is taken up in a large quantity of ether, the solution filtered and clear filtrate evaporated to dryness. The residue is again taken up in as small a quantity of ether as is required to dissolve it. To this solution add five volumes of acetone and place in the icebox over night to allow the whitish precipitate to settle. The greater part of the acetone is removed by syphonage and the remainder allowed to evaporate. A mass of sticky yellow brown material remains. This mass is weighed and dissolved in a sufficient quantity of methyl alcohol to make a 3 per cent solution. For use a 10 per cent solution is made up and titrated. The antigen is fairly stable but should be titrated at least every six weeks.

Complement—The complement is the serum from the blood of at least three guinea pigs. The blood is obtained from the heart by aspiration and the pigs are bled again in about four or six weeks. Normal guinea pigs are always used and in no case a gravid pig bled for complement as the serum of such a pig is apt to be weak.

The blood is centrifugalized and kept in the icebox until used. A 10 per cent dilution of complement in physiological salt solution is used throughout the test.

Eythrocytes—The sheep is bled and the volume of blood to be washed marked on the centrifuge tube. Saline solution (about three times the volume of sheep blood) is added and thoroughly mixed. After centrifugalizing, the supernatant fluid is drawn off by means of a pipette fitted to a suction pump. More saline is added to the cells and again thoroughly mixed in order to wash well the entire lot of cells. This is repeated at least three times and finally the cells brought up to a volume equal to that of the whole blood. The sheep cells are always washed on the day of the test. A 10 per cent suspension of the volume of the whole blood is used throughout the test.

Amboceptor—The amboceptor is the serum of rabbits which have been given several successive inoculations of sheep cells. Rabbits are inoculated intravenously on three successive days with thoroughly washed sheep cells. The doses being 1 c.c. and 2 c.c., respectively, of a 50 per cent suspension of the volume of the whole blood which has been slightly heated in the incubator for about one-half to three-fourths of an hour. A second series of injections is started on the fifth day after the last injection of the previous series. After waiting for six days a specimen of blood for a trial titration is taken by bleeding the rabbit from the marginal vein of the ear. If the titer of the serum is sufficiently high, the rabbit is bled to death from the carotid. If the titer is not satisfactory a third series of injections is given. This usually produces a very potent serum. The amboceptor used in this laboratory at present has a titer of 1-6000. The serum, preserved with .5 per cent phenol, is stored in small sealed ampoules.

Saline—Physiological salt solution 0.85 per cent to 0.9 per cent is used throughout the test, in washing blood and in diluting all reagents.

Standardization of Reagents—Patient's Serum—0.4 c.c. of the human serum to be tested is inactivated in an electrically regulated water bath at 56° C. for one-half hour. To each tube add 1.6 c.c. of the 10 per cent suspension of washed sheep cells and incubate in the water bath at 37° C. for one-half hour. These cells absorb what natural sheep amboceptor there may be present in the serum. After centrifugalizing, the supernatant fluid (diluted serum) is used in the test.

Antigen—The antigen is titrated for complementary, antigenic and anticomplementary properties. It is first tested for complementary properties by incubating in the water bath at 37° C. for one-half hour, 0.2 c.c. of antigen, 0.2 c.c. of a determined dilution of amboceptor, 0.2 c.c. of sheep cells and 0.4 c.c. of saline. If hemolysis occurs the antigen is discarded but if there is no hemolysis the two final tests are performed.

To test for antigenic properties 0.1 c.c. of the following dilutions of antigen are set up: 1/2, 1/3, 1/4, 1/5, 1/6, 1/8, 1/10, 1/12, 1/16, 1/20, 1/24, 1/32, 1/40, 1/48, 1/64, 1/80, 1/96; 0.2 c.c. of a known syphilitic serum (prepared as for the test—see above) and 0.2 c.c. of a 10 per cent solution of complement are added and the tubes incubated in the water bath for one hour at 37° C. Then 0.2 c.c. of the determined dilution of amboceptor, 0.2 c.c. of a 10 per cent suspension of cells, and 0.1 c.c. of an 0.85 per cent solution of saline are added and the tubes reincubated for one-half hour. To test for anticomplementary properties the same technic is followed as in testing for antigenic properties, but using a known normal serum in place of the syphilitic serum. As a good antigen must have a wide range, the dilution used in the test is an average between the smallest dilution showing inhibition with a known negative serum and the highest dilution giving fixation, or the antigen unit.

Amboceptor—Preliminary titrations of a new amboceptor are made to establish a standard dilution. This is done by incubating in the water bath at 37° C. for one hour, 0.1 c.c. varying dilutions (from 1/100 to 1/10,000) of amboceptor, 0.2 c.c. of a 10 per cent suspension of sheep cells, 0.2 c.c. of a 10 per cent solution of complement and 0.5 c.c. of physiological salt solution. The dilution showing complete hemolysis in one hour, reading the tubes at frequent intervals to determine the rapidity of the reaction, is the determined dilution of the amboceptor.

The amboceptor is titrated daily before each test according to the following table:

	Number of tube Amboceptor	Complement 10 per cent	Cells 10 per cent	Saline 0.85 per cent
1	1/3000 .1 c.c.	.2 c.c.	.2 c.c.	.5 c.c.
2	1/4000 .1 c.c.	.2 c.c.	.2 c.c.	.5 c.c.
3	1/5000 .1 c.c.	.2 c.c.	.2 c.c.	.5 c.c.
4	1/6000 .1 c.c.	.2 c.c.	.2 c.c.	.5 c.c.
5	1/7000 .1 c.c.	.2 c.c.	.2 c.c.	.5 c.c.
6	1/8000 .1 c.c.	.2 c.c.	.2 c.c.	.5 c.c.

The tubes are incubated in the water bath at 37° C. for one-half hour and readings made at fifteen minute intervals.

It will be seen from the table that fewer dilutions are used than in the preliminary titration, two or three above and two or three below the determined dilution being sufficient.

Complement—0.2 c.c. of a 10 per cent dilution is used in the test, but very often the complement is titrated daily as well as the amboceptor, according to the following table:

Number of tube	Complement 10 per cent	Amboceptor determined dilution	Cells 10 per cent	Saline 0.85 per cent
1 -----	.06 c.c.	.2 c.c.	.2 c.c.	.56 c.c.
2 -----	.1 c.c.	.2 c.c.	.2 c.c.	.5 c.c.
3 -----	.15 c.c.	.2 c.c.	.2 c.c.	.45 c.c.
4 -----	.2 c.c.	.2 c.c.	.2 c.c.	.4 c.c.
5 -----	.25 c.c.	.2 c.c.	.2 c.c.	.35 c.c.
6 -----	.3 c.c.	.2 c.c.	.2 c.c.	.3 c.c.
7 -----	.4 c.c.	.2 c.c.	.2 c.c.	.2 c.c.
8 -----	.5 c.c.	.2 c.c.	.2 c.c.	.1 c.c.

The tubes are incubated in the water bath at 37° C. for one-half hour.

Test for Diagnosis—The test for diagnosis is set up as follows:

Number of tube	Patient's serum 20 per cent	Antigen in standard dilution	Complement 10 per cent	Amboceptor determined dilution (2 units)	Cells 10 per cent
1 -----	.2 c.c.	.1 c.c.	.2 c.c.	.2 c.c.	.2 c.c.
2 -----	.4 c.c.	.1 c.c.	.2 c.c.	.2 c.c.	.2 c.c.
3 -----	.4 c.c.	.0 c.c.	.2 c.c.	.2 c.c.	.2 c.c.

The patient's serum, antigen and complement are incubated in the water bath at 37° C. for two hours, after which the amboceptor and cells are added and the tubes reincubated for one-half hour.

A positive control serum is always included in the test. Complete inhibition in tubes 1 and 2 is reported a very strong positive (+++). Partial hemolysis in tube 1 with complete inhibition in tube 2 or slight hemolysis in tubes 1 and 2 is reported positive(++). Partial hemolysis in tube 2 with complete hemolysis in tube 1 or very slight inhibition in tubes 1 and 2 is reported inconclusive(+). Nearly complete hemolysis in tube 1 with almost complete hemolysis in tube 2 is reported inconclusive(±). Complete hemolysis in all tubes is reported negative.

TUBERCULOSIS.

All specimens of sputum are autoclaved before examining. This breaks up the mucus as well as renders the specimens safe to handle.

Thick smears are made on new slides and after fixing by heat are stained in jars at least ten minutes with the acid fast stain by the cold method. The smears are washed in water until all surplus carbol fuchsin is removed and stained with Gabbet's stain (in jars), from thirty seconds to one minute, depending on the thickness of the smear.

The nonacid fast organisms take the stain very lightly so that the tubercle bacilli appear a very dark red against a faint blue background.

Acid fast stain:

Fuchsin basic	4.0 gms.
Phenol crystals	8.0 gms.
Distilled water	150.0 c.c.

Gabbet's stain:

Sulphuric acid 25 per cent.....	100 c.c.
Methylene blue	1 gm.

The Gabbet's stain should be changed frequently.

TYPHOID FEVER.

Blood culture. About 5 c.c. of the patient's blood are added to 250 c.c. of broth and incubated at 37° C. for twenty-four hours; smears from the blood culture are stained by Gram's method and if no contaminating organisms are found, several loops full are planted on an agar slant. After twenty-four hours incubation, the culture is washed down with sterile saline and is agglutinated with a typhoid agglutinating serum of known titer.

If the blood culture is found to be contaminated it must be planted on Endo medium, suspicious colonies fished and planted into Russell's double sugar medium; if the fermentation reactions are satisfactory for typhoid, the organism is agglutinated with a known serum, as above.

Agglutination Test (Microscopic). Only containers for collecting moist blood specimens are now used by this Bureau, the dried blood method having proven unsatisfactory. The serum is withdrawn from the clot and dilutions of 1/20 to 1/320 made in small test tubes; to each of these dilutions one or two drops of the typhoid antigen is added. These are placed in the 37° C. water bath for over night, then in the ice box for one hour, or they may be incubated two hours in the 37° C. water bath and placed in the ice box over night. A positive reading is based upon a clear supernatant fluid and the rising of typical flakes upon shaking the tubes. Just before adding the killed culture of typhoid bacilli to the different dilutions of serum, enough of the 1/40, 1/80 and 1/160 dilutions are taken out to set up a microscopic agglutination test which is run as a parallel.

The antigen is prepared as follows:

Hopkin's strain of *Bacillus typhosus* is used as our agglutinating strain. Broth cultures of this strain are carried over every twenty-four hours for two days, then several agar slants are inoculated and incubated for forty-eight hours. After proving the strain pure by Gram's stain, about 5 c.c. of formalized salt solution are added to each slant, depending upon the amount of growth. This is allowed to stand about fifteen minutes. Shaking carefully makes a better suspension than scraping off the growth with a platinum wire, since there is no chance of taking off bits of media. This is stored for twenty-four hours in the icebox, then inoculations are made onto agar slants as a test for sterility.

Agglutination Test—Microscopic. If an insufficient amount of whole blood has been sent in to allow a macroscopic agglutination to be done, a microscopic test is made. After centrifuging the specimen the serum is drawn off with a capillary pipette; dilutions are made in watch-glasses with sterile saline using the same capillary pipette throughout the test in order that the size of the drops may not vary.

Dilutions (1/40) are made with *B. typhosus* (Hopkin's strain), *B. paratyphosus* A. and B. In addition, dilutions of 1/80 and 1/160 are set up with *B. typhosus*. Controls are made by setting up hanging drops of the cultures with saline.

A positive diagnosis is made when there is complete clumping with no free organisms, tight clumping with complete loss of motility or only a few sluggishly moving organisms.

If there is partial clumping with motility, the reaction is said to be inconclusive and another specimen is requested.

If there is positive agglutination with *B. typhosus*, *B. paratyphosus* A. and B. in the 1/40 dilution, higher dilutions are run with the two paratyphoids in order to determine the specific agglutinated organisms.

All other reactions are interpreted as negative.

Care of Cultures. The cultures used are planted each day into broth from an agar slant and are incubated at room temperature. The slants are carried over every week.

The broth and agar cultures of *Bacillus typhosus* and *Bacillus paratyphosus* A. and B. are frequently examined by Gram's stain as a check against contamination. If the cultures are found contaminated they are plated on Endo medium, colonies picked, planted into Russell's double sugar medium and agglutinated with a typhoid or paratyphoid agglutinating serum of known titer.

Excreta. Whenever possible the fresh specimen is used but when specimens are sent to the laboratory by mail a special outfit is required which contains a 20 per cent solution of glycerine in saline. It is requested that the soft stool be obtained, preferably the second after taking a cathartic. Calomel should not be taken.

A small portion, about the size of a bean, of a well mixed and broken specimen is transferred to a tube of nutrient broth; 0.1 c.c. of this mixture is transferred to a second tube and 0.1 c.c. from the second to a third. These dilutions are allowed to stand about ten or fifteen minutes before plating.

One or two drops of the broth mixtures are well spread, using a bent glass rod, over the surface of freshly prepared Endo plates. Use one plate for each broth dilution. After twenty-four hours incubation the clear, transparent, pearly colonies are seeded by streak and stab inoculation into Russell's double sugar agar. In this medium we obtain the acid and gas production while the slant provides growth for the macroscopical agglutination, hanging drop for motility and smear for staining, by Gram's method. The macroscopic agglutination confirms the cultural findings, and the serum used is one of known titer. Should there be any doubt regarding the sugar reaction in the Russell's medium, fermentation tubes of glucose, lactose, saccharose and mannit broth are inoculated as a check.

The formulæ for the media used are given in detail. For Endo's medium a 2 per cent nutrient agar in 50 c.c. and 100 c.c. lots is titrated to +.8 to phenolphthalein and stored ready for immediate use. A sterile 10 per cent solution of lactose and a 10 per cent alcoholic solution of fuchsin are kept on hand. The Endo medium is prepared and plates poured just before using.

To the melted 2 per cent agar add 1 per cent lactose and 3 to 5 drops of fuchsin, decolorize with freshly prepared 10 per cent aqueous solution of sodium sulphite, using about twice the amount of fuchsin. Pour plates, and when cold place open and inverted in the incubator for one-half hour to dry the surface of the medium.

For Russell's medium add to a 2 per cent nutrient agar, adjusted neutral to litmus, 1 per cent lactose and 0.1 per cent glucose and sufficient concentrated litmus solution to give a blue violet color. Tube and slant, leaving a generous "butt" at bottom of tube. This medium should be sterilized in the Arnold sterilizer.

The carbohydrates in 1 per cent amounts are added to nutrient broth, tubed in fermentation tubes and sterilized in the Arnold sterilizer. The Andrade indicator, consisting of 100 c.c. of a 0.5 per cent aqueous solution of acid fuchsin, decolorized by the addition of 16 c.c. normal sodium hydroxide solution, is used with the carbohydrates. 1 c.c. of indicator is added to each 100 c.c. of media, the reaction of which is adjusted to the indicator so that it is distinctly pink when hot, but colorless when cold.

TYPHUS FEVER.

Blood from a suspected case is drawn from a vein and immediately added to a 10 per cent sodium citrate solution in the proportion of 9 to 1 and thoroughly mixed.

At the laboratory guinea pigs are inoculated intraperitoneally with 2 to 5 c.c. of the citrated blood. The temperature of the guinea pigs is taken before inoculation and then twice daily. Laboratory findings depend upon the temperature chart, a positive report being given when the characteristic rise takes place about seven to ten days after inoculation.

REPORT OF THE BUREAU OF TUBERCULOSIS.

E. L. M. TATE-THOMPSON, DIRECTOR.

The history of legislation dealing with the tuberculosis problem in California, dates back to 1904. During the general awakening to the necessity of hospital care for the tuberculous, the Eastern and Middle Western states made large appropriations that have since been doubled and trebled in amount for state sanatoria. In 1904 a bill was introduced in the legislature, calling for an appropriation of \$150,000 for state sanatoria; this failed to pass.

In 1907 the legislature passed a law requiring the reporting of all cases of tuberculosis, an antispitting law was also passed, \$2,000 was appropriated for the dissemination of knowledge concerning the spread of tuberculosis, and nearly 1,000,000 pieces of literature on the subject were distributed among the school children of the state. The State Board of Health was also empowered to arrange for the treatment of indigent tuberculous residents in public and private sanatoria—the bills for the patient's care to be met by their home counties. Only within the last two years, since the agitation for better care for our indigent tuberculous patients has been made throughout the state, have the supervisors taken advantage of this law. At present many of the counties while in the process of constructing new hospitals have placed their patients in various institutions recommended by the bureau throughout the state.

In 1911, the California Tuberculosis Commission was appointed by the State Board of Health. An appropriation of \$5,000 was made to carry on the investigation.

In 1913, the commission reported to the legislature and presented a constructive program, which included the establishment of a Bureau of Tuberculosis—the legislature making an appropriation of \$7,500. This amount was so small that it was impossible to inspect the hospitals regularly and did not allow sufficient postage to carry on the administrative work of the bureau. The example set by California, however, resulted the following winter in the creation of a Bureau of Tuberculosis in the State Board of Health in New York, Ohio and Wisconsin. The inspection of the county hospitals making provision for indigent tuberculous patients, brought to light two significant facts: First, more deaths from tuberculosis were reported in every county, and second, disclosed the fact that the hospitals were serving as a place where the homeless and often tuberculous tramp, too ill to continue his journey, might be taken to die. Conditions in these hospitals beggared description, but the counties justified their lack of proper care by the fact that they were waiting to see what policy the state intended to adopt. Many of the counties, particularly in the northern part of the state, prior to 1915, made no provision whatever for patients suffering from tuberculosis. In the fall of 1914 conferences were held by the California Association for the Study and Prevention of Tuberculosis, with the State Board of Health, and others interested in the problem—the high death rate in the counties, the inadequate number of beds, the lack of proper buildings, of medical attention and nursing care, coupled

with the utter impossibility of caring for the large number of indigent patients, needing hospital care, made an adequate state institution, unless the appropriation ran well into the millions of dollars—an impossibility.

In 1915 four tuberculosis measures were introduced in the legislature. Three bills of a similar nature called for appropriations for state sanatoria. The other enlarged the duties and powers of the Bureau of Tuberculosis, authorizing a subsidy of \$3.00 per week per resident tuberculous indigent, to be paid to counties maintaining tuberculosis hospitals or wards that complied with the standard of the Bureau of Tuberculosis, the Director having the same powers of inspection and supervision as in the previous act of the legislature. The bill carried an appropriation of \$75,000, \$20,000 of which was set aside for administration of the act, and \$55,000 for the subsidy, to be paid the counties complying with the standard of the bureau. After the passage of this act, the bureau was confronted with a task of standardizing separate buildings, pavilions, wards in large general hospitals, and rooms in almshouses. The standard has not only changed the present system, but has also served as a standard for buildings to be constructed in the future. That the standard adopted by the State Board of Health has changed county hospitals enough so that they rank with the first-class private and public sanatoria of the country is no exaggeration. From the days in which there was no medical attention and frequently no nursing excepting what the patients gave each other, these subsidized hospitals have improved until now they are giving first-class care and treatment.

The legislature of 1917 made an appropriation of \$125,000, \$30,000 of which went to the bureau for administration.

STANDARDIZATION FOR TUBERCULOSIS WARDS OR PAVILIONS OF COUNTY HOSPITALS.

In determining the eligibility of hospitals for the state tuberculosis subsidy, they will be graded by the State Board of Health, according to location, construction, treatment and care of patients, and diet.

Location and grounds—will count one to five points.

Construction and type of building—one to twenty-five points.

Treatment and care—one to thirty-five points.

Diet—one to thirty-five points.

A hospital must receive a total of eighty points to be eligible for the state subsidy.

Location.

Any buildings or pavilions to be constructed in the future must be on a part of the grounds separate from the general hospital. Counties contemplating construction must bear this in mind and consult with the Bureau before locating their building. Accessibility, transportation, length of time in reaching the hospital, and its proximity to other county buildings will be the points on which location will be graded.

Buildings.

The Bureau discourages the erection of an expensive type of building unless it is a part of a general plan for a large county or city and county hospital. In the smaller counties, inexpensive buildings have been erected to care for as many as forty patients for about \$14,000.00.

Buildings will be graded on their construction and on the type of building, also their capacity relative to the need of the tuberculosis poor of the county. They will be classified as separate buildings, pavilions, cottages, wards in a general hospital, "shacks" or tent houses.

Class A Structure.

A separate building.—It must have proper accommodations for a head nurse; sufficient baths, toilets and lavatories for patients; a diet kitchen for preparing food which can not be transported; two kitchen sinks or adequate facilities for washing and disinfecting dishes. If the building is separate from the general hospital and run as a sanatorium, it must have an examination room. There must be isolation rooms for advanced cases; not less than one isolation room for every ten patients. In the wards, there must be a minimum distance between beds of 3 feet 6 inches. Wards must be sufficiently lighted, preferably by electricity. Wards need not be heated, but dressing rooms, bath-rooms and patients' dining-room must be heated in cold weather.

Class B Structure.

A ward in the general hospital.—The requirements regarding equipment and sufficient isolation rooms and food will be the same as for Class A. Class B structures must have a separate dining-room for ambulatory patients.

Class C Structure.

The "shack" type or tent house.—It can not be used except for earlier cases. Any erection of a "shack" or tent house will be discouraged unless a nursing force is provided adequate for giving patients the necessary care.

Equipment.

In structures of any of the three classes, the following requirements must be met: In buildings having over thirty-six (36) beds, one tub or shower bath for every twelve (12) patients; one lavatory for every six (6) patients; one toilet for every six (6) patients; two dental lavatories and two slop sinks for every thirty-six (36) patients; two kitchen sinks are desirable. The stove in the kitchen must be large enough so that if food is to be prepared there, it can be done without inconvenience.

There must be back rests for bed cases; ambulatory cases must be provided with inexpensive canvas reclining chairs. If trays are used, they must be kept clean. The more expensive aluminum trays last much longer than the common papier maché, which will not be allowed in the future. The use of granite iron dishes and tin spoons is discouraged.

Call bells must be provided in each ward; properly ventilated lockers must be provided for each patient; scales also must be provided.

Wards and rooms must be screened and wards and sleeping rooms must be canvassed. A platform or sun porch must be provided.

Treatment and Care.

If there is not a resident staff connected with the hospital, a visiting staff must be arranged. This can be done through the County Medical Society. There must be one interne for every fifty patients. Daily records must be kept. There must be a complete examination on admission and frequent subsequent examinations. The diagnosis and type of tuberculosis must be recorded and the complete record of the patient must be kept where it is accessible to the representative of the State Board of Health. Temperature must be taken four times a day and accurate charts must be kept.

Nursing.

In Class A buildings there must be one registered nurse who has had special training in tuberculosis nursing, and one nurse for every sixteen patients; also one orderly. In Class B buildings nursing must be supervised by the superintendent of nurses, and one pupil nurse provided for every sixteen patients.

Admission.

The admission blanks furnished by the State Board of Health must be filled out in full and sworn to by the patient and the superintendent of the hospital.

Care of Patients.

Adult patients must be segregated as far as possible, according to the stage of the disease. Bed cases must be placed in the smaller wards, so that it will be convenient for dying cases to be taken into the isolation rooms. Children must be segregated in a small ward of their own. Bedding must be disinfected after death or removal of each patient. Patients needing extra heat at night must be given hot water bottles or soapstones.

Property of Patients.

Provision must be made for the safe storage of any valuables or money deposited by the patient.

Food.

Care must be taken in handling and serving food for patients so it will be attractive. There is an enormous waste of food in hospitals, due to the fact that patients frequently can not eat the food served them. It must be remembered that patients suffering with tuberculosis nearly always have serious stomach disturbances and fickle appetites, and the serving of food to these patients must be done with this in mind. If the food is to be transported from the general hospital, it must be sent over in a fireless cooker or reheated before being served.

Tea must be made in the diet kitchen, and coffee, if sent from the general hospital, must be hot, when served. We recommend that coffee and toast and eggs be prepared in the diet kitchen.

A suggested diet list will be submitted by the State Board of Health.

The San Joaquin County, California - record.

[illegible]

This hospital has undergone a number of changes since it was constructed. This past summer they have reproduced the building and a kitchen has been built that will obtain the serving of food from the kitchen of the general hospital.

No provision is made in the county for the care of women or children suffering with tuberculosis, this group of patients being cared for by special arrangement with an outside hospital. Changes were made in the present building to comply with the standard, and men needing care were sent to the Sacramento Hospital. No additional beds were recommended to the supervisors, because of the urgent necessity of building in the country. Sacramento, with Yolo, Placer, Yuba, Amador, El Dorado, Contra Costa, Tuolumne, Plumas, Colusa and Sutter counties have already purchased 480 acres of land near Colfax and a large Tuberculosis Sanitarium is in process of construction. When this is finished these counties will be in position to give first-class care and treatment to any patients, both pay and indigent, who may be suffering in their immediate counties.

This county maintains an excellent tuberculosis hospital, having been subsidized for the past year and a half. The bed capacity has been doubled by means of a new wing that provides private rooms, splendid new baths and dressing rooms and a fine kitchen.

The San Diego County Hospital has been crowded to the limit of its capacity for many years. Application was made for the subsidy in 1916, but it was impossible to grant it. In 1917 an appropriation was made for a splendid new hospital some distance from the present county hospital, with a capacity of over 60 patients, with ideal surroundings, and as we go to press a bequest of \$35,000 given to the county by the courts makes it possible to extend the new wing of the hospital so that San Diego will soon be in a condition to take a group of people who are able to pay a dollar a day. This hospital will be subsidized as soon as it is opened.

Many visits have been made to the old tuberculosis hospital, and the director is glad to report that the new tuberculosis building recently erected by the supervisors ranks with any of the new hospitals that have been completed. It has excellent accommodations for both men and women and has been operating under the subsidy ever since it was opened.

The Board of Health has never been able to subsidize the full capacity of this hospital, principally for the reason that its overcrowded condition and lack

waiting list is proof that the county is not giving adequate care. A temporary building was constructed for men and 23 more beds were subsidized in the women's ward. Since this time Los Angeles has purchased 450 acres of land in the San Fernando Valley and there is in process of construction now a magnificent sanitarium that, when its full capacity is reached, will care for 500 patients, at a cost of a half million dollars. This institution will be only for curable cases—the far-advanced cases will be cared for in the city of Los Angeles. Hundreds of soldiers who will need care will be able to go here for a short period and be restored to health.

Alameda County Tuberculosis Hospital.

Inspections were frequently made of the tuberculosis building at the county infirmary; granting the subsidy was not possible, and in the spring of 1917 the supervisors purchased a beautiful tract of land in Livermore Valley and have erected one of the finest tuberculosis sanitariums in the United States. It will soon have a capacity of 200 patients. Splendid provision is made for every group of patients in the county. This sanitarium has been subsidized ever since it was opened.

Marin County Tuberculosis Hospital.

Excellent provision has been made in Marin County in a small 12-bed building. This is run in connection with the county hospital. It has met ever since it was opened the requirements of the Bureau of Tuberculosis for the subsidy, but the supervisors have refused to have the hospital placed on the eligible list.

San Francisco City and County Tuberculosis Hospital.

Considerable remodelling of the old buildings has taken place from time to time. The hospital has been suspended twice on account of the waiting list, and while the buildings have a capacity of 275 beds, only 100 beds have been subsidized; but patients have had, in spite of the old buildings, good care. In the spring of 1918, after a conference with the superintendent of the San Francisco hospital, the mayor and the chairman of the Finance Committee, an appropriation of \$50,000 was made for a sanitarium in the country. The new half million dollar hospital will soon be opened, but it does not give any guarantee that San Francisco, with its many rejected draft men and discharged tubercular soldiers, will be in a position to care for the enormous group of patients in San Francisco that are in need of immediate care.

Shasta County Tuberculosis Hospital.

Shasta County has excellent accommodations now for 16 patients. Previously there was no place in California where miners suffering from miner's tuberculosis could be sent. The building of this pavilion has filled a long-felt want in the north and has been subsidized since the opening.

Kern County Tuberculosis Hospital.

In January a joint meeting was held with the supervisors of Kings, Tulare and Kern counties to discuss the advisability of establishing a joint county hospital. A great deal of time was spent the following months in the selection of a site. Owing to the distance, it seemed advisable for Kern County to build alone. There will soon be accommodations for 60 patients. A beautiful location was selected on top of the Tehachapi and the sanitarium, consisting of a series of six attractive buildings, will soon be open.

Kings and Tulare County Tuberculosis Hospital.

Following the decision of Kern County to build alone, a site near Springville was selected and this building, with accommodations in the beginning for 42 patients, will soon have accommodations for 60.

Santa Barbara County Tuberculosis Hospital.

Santa Barbara County had planned in the beginning to join with Ventura and Los Angeles. After spending considerable time debating the advisability of their joining, they decided to build alone, \$82,000 has been appropriated for a new sanitarium to be run in connection with their new general hospital.

Merced, Stanislaus and Madera Counties.

Numerous meetings have been held with the joint boards and many sites visited in the Sierras. A splendid site has been selected in the high Sierras, so the patients will be able to get away from the enervating heat of the valley in the summer. The hospital will have a capacity of 100 beds.

Humboldt, Mendocino, Sonoma, Napa and Lake Counties.

A similar campaign was inaugurated among this group of counties in the early summer. Many sites have been investigated and it is only a question of a short time before they definitely decide on some land in Sonoma County. When this plan is completed all of the counties will be in a position to give first-class care to any of their civilian tuberculosis patients in buildings that are constructed separate from any of the other county institutions. The bureau is given the privilege by the War Risk Insurance Bureau of referring patients to these institutions. This will also solve the problem of caring for many rejected registrants as well as discharged tuberculous soldiers.

Counties to Be Worked in During the Coming Year.

Several attempts have been made to have Riverside County provide adequate care for its patients—the original plan was for them to join with San Bernardino. At the last moment they decided not to join, and instead have made some attempt to remodel their old building at the county hospital. Orange County is being approached at this time to also remodel their building, which has never been successful in its arrangement.

Imperial County is also being visited.

Ventura County has planned to join with Los Angeles, and when San Luis Obispo, San Benito and Monterey counties are ready to care for their patients adequate provision will have been made by every county in the state.

The amount appropriated to date for sanatoria in California is as follows: San Francisco County—\$500,000 for hospital in city, 250 beds; \$50,000 for sanitarium outside city, (?) beds; \$7,500 for remodeling old building.

Los Angeles County—\$150,000 with a definite promise of a 1-cent tax levy: \$240,000 for the next three years to complete the sanitarium at Sylmar, 500 beds when completed; \$2,500 appropriated for temporary buildings; 250 beds available in the Los Angeles County Hospital for advanced patients—750 beds. San Diego County—\$40,000 for 60 beds, with an additional appropriation of \$35,000 available to date; 40 beds more when completed.

San Bernardino County—\$20,000—40 beds.

Santa Barbara County—\$32,000—42 beds—12 beds available in portable houses. Sacramento, Placer, El Dorado, Sutter, Plumas, Yuba, Yolo, Tuolumne, Amador.

Colusa and Contra Costa counties—\$180,000—300 beds.

Shasta County—\$3,600—16 beds.

Fresno County—\$18,000—50 beds.

San Joaquin County—\$18,000—46 beds.

Santa Clara County—Remodeling, \$10,000—60 beds.

Marin County—\$3,600—12 beds.

Kings and Tulare counties—\$20,000—42 beds.

Kern County—\$15,000—60 beds.

Ventura County—\$11,000—16 beds.

Merced, Madera and Stanislaus counties—\$50,000—100 beds.

*Humboldt, Mendocino, Sonoma, Lake and Napa counties—\$40,000—80 beds.

Alameda County—\$200,000—200 beds.

Total beds—2,182.

Total amount appropriated for buildings and equipment, \$1,646,200.

This amount is for buildings and equipment only—not for maintenance.

Besides this we have in the four semiphanthropic institutions, viz: The Barlow Sanitarium at Los Angeles, La Vina at Pasadena, Arequipa in Marin County and Duarte, Los Angeles County, 231 beds available for early cases of tuberculosis where patients may pay a small sum for their care.

Resthaven Camp for Discharged Tuberculous Soldiers.

On account of the large number of men rejected in the draft and discharged from the army on account of tuberculosis, because all of the hospitals are crowded, the San Diego Tuberculosis Association, assisted by the California Tuberculosis Association, opened a small camp for men who were not hospital cases, but who need rest and care. This camp is supported by the Red Cross chapters and tuberculosis societies, paying \$1.00 a day for the care of each man entered there. Patients are admitted through the bureau.

Rejected and Discharged Soldiers.

When the men in the first draft were called, the bureau, realizing what a golden opportunity presented itself to reach hundreds of early cases, at the time of the draft examinations prepared a set of cards.

A

CALIFORNIA STATE BOARD OF HEALTH BUREAU OF TUBERCULOSIS SACRAMENTO, CALIFORNIA

Report of a Case of Suspected or Known Tuberculosis

Name of person examined

Street and number

City or town

Type of disease } suspected / tuberculosis of lungs, larynx, lymph glands,
 } known / peritoneum, bones, intestines, meninges, skin.....

Stage of disease: Early, moderate, advanced. (Cross out words which do not apply.)

Place of examination

Date of examination

.....
Examining Surgeon

I request a thorough examination by a tuberculosis expert and advice about the need for treatment and opportunities for receiving it.

.....
Person examined

The signer of the request will be notified when and where to report for examination.

*Site has not yet been located, money available for it.

C

CALIFORNIA STATE BOARD OF HEALTH
BUREAU OF TUBERCULOSIS
 Sacramento, California

Mr.----- of -----

rejected at the time of the selective draft by the military or naval authorities on account of tuberculosis, has been instructed to report to Dr.-----

Tuberculosis Examiner, at the following time:-----

This record card should be filled out by the tuberculosis examiner in every case and returned in the enclosed stamped envelope. If the case proves to be one of tuberculosis the enclosed official tuberculosis report card should be filled out and returned with this record. If the patient does not appear within fourteen days after the date given above, that fact should be recorded and the card returned.

The patient reported on-----1918.

Important items in patient's family and personal history: -----

Symptoms complained of: -----

(See other side for physical examination)

* Reverse of tuberculosis card

NAME OF PATIENT-----

Temperature ----- at ----- Weight -----

Examination of chest-----

Tubercle bacilli in sputum?-----

Examination of other parts showing evidence of tuberculosis-----

Diagnosis (including location, stage, activity, and severity of lesions)-----

Needs of the patient-----

Advice given patient-----

Referred to what person, health department, or institution, for treatment, supervision, or assistance -----

Recommendations to State Board of Health-----

Remarks -----

-----1918.

Tuberculosis Examiner

Arrangements were also made with tuberculosis specialists in various parts of the state to re-examine the men free of charge. The visiting nurses and the county nurses and Red Cross chapters have all co-operated, and hundreds of men have been placed under observation, their families being instructed as to how to care for themselves. So much has been done, in fact, that many men rejected in the first draft were accepted in the second because they responded immediately to the care given them.

BUREAU OF TUBERCULOSIS.

Report on Men Rejected in Navy, in First and Second Drafts.

September 1, 1918.

Number of rejected men reporting for second examination to staff of physicians appointed by State Board of Health.....	530
Number independent having home treatment or private physician.....	519
Number of cases attending clinics.....	211
Number of cases visited by our field nurses.....	449
Number of cases referred to Red Cross chapters.....	22
Number found nontuberculous after second examination.....	95
Number accepted for service.....	29
Number needing sanatorium care.....	109
Number placed in sanatoria.....	78
Number living in rural districts too far to visit.....	18
Number left the state.....	51
Number of deaths.....	13
Number unable to locate on account of incorrect address or moved.....	178

Totals.

Total number of cases data not completed.....	591
Total number of cases in closed files.....	1,344
Total number of rejected men.....	1,935

Report on Men Discharged from California Camps on Account of Tuberculosis.

September 1, 1918.

Number independent having home treatment or private physicians.....	396
Number of cases attending clinics.....	282
Number of cases visited by our field nurses.....	599
Number of nontuberculous cases.....	29
Number of cases reported accepted for service.....	31
Number needing sanatorium care.....	158
Number placed in sanatoria.....	108
Number referred to Red Cross chapters.....	60
Number left the state.....	27
Number living in rural districts too far to visit.....	3
Number of deaths.....	8
Number unable to locate on account of incorrect address or moved.....	273

Totals.

Total number of cases not completed.....	267
Total number of cases in closed files.....	1,241
Total number of men leaving camp without giving address.....	98
Total number of soldiers excluded from service (who reside in California).....	1,606
Total number of soldiers discharged from California camps, whose legal residence is in other states.....	1,136
Personal letters from the rejected and discharged men received at the bureau.....	1,000
Letters received from Red Cross chapters regarding the men.....	300

REPORT ON MEN REJECTED IN 1ST AND 2D DRAFTS AND IN NAVY.
September 1, 1918.

County	Reported for second examination	Independent, home treatment or private physician	Clinic cases	Visited by field nurses	Accepted for service	Nontuberculous	Left state	Died	No. needing sanatorium care	No. placed in hospitals or sanatoria	No. referred to Red Cross chapters	Can not locate—Incorrect address or moved	Living in rural district too far to visit	Total No. cases, data not completed	Total No. in closed files	Total No. of rejected men
Alameda	40	29	30	28	3	14	1	1	14	10		3		46	74	120
Alpine																
Amador	5	5												6	10	16
Butte		2					1		1	1				2	2	2
Calaveras	3	2										2		3	5	8
Colusa	2	2							1	1	3			1	2	3
Contra Costa	2	2	2						1	1		1		13	7	20
Del Norte							1					1		1	1	2
El Dorado	2	1	42							6				7	3	10
Fresno	38	33	28	27	4	9	2		10			8		44	110	154
Glenn																
Humboldt														1	1	1
Imperial	3	2										2		3	10	13
Inyo														2		2
Kern	3			1		1						1		12	4	16
Kings	1	1									2	1		8	6	13
Lake														2		2
Lassen														1	1	1
Los Angeles	130	216	64	225	7	34	25	3	45	35		67		143	488	631
Madera	1	1							1			1		3	2	5
Marin	3	2		4					1					5	5	10
Mariposa														1	1	1
Mendocino														1	1	1
Mered	9	7				1	1		2			4		21	27	48
Modoc																6
Mono														3	1	4
Monterey	3	1												5	4	9
Napa	2	2					1	1				1		4	4	9
Nevada														4	2	6
Orange	22	26		31	2		2		4	4	1	4		5	42	47
Pacer	6	3		1			1		2	2		1		13	8	21
Plumas		2										2		4	4	8

Riverside	24	12		1	3		2	2	3	2	2	41	43
Sacramento	7	13	2	24	2	1	2	2	1		6	24	26
San Benito	4	3	4									1	7
San Bernardino	17	23	17		1	1	3	5	2	2	5	25	51
San Diego	10	4	10	6				2	2	15	10	53	39
San Francisco	33	25	29	23	1	8	1	1	3	3	18	33	83
San Joaquin	72	28		59	3	19	2	1	4	1	18	25	125
San Luis Obispo		2										4	2
San Mateo	10	7	2		3	2	2				3	19	21
Santa Barbara		1		1			1				1	1	3
Santa Clara	8	10	6	14	1			3	2		4	14	18
Santa Cruz			12					1	1		1		3
Shasta		6										7	5
Sierra												2	2
Siskiyou												12	12
Solano		2				2						4	8
Sonoma		4									2	5	6
Stanislaus	3	1			1						3	4	7
Sutter		1										8	1
Tehama									1			1	1
Trinity		1										2	1
Tulare	41	30			3	1	1				14	7	70
Tuolumne	1	1										5	1
Ventura	1										5	1	6
Yolo	2	1	4	4		1		1				4	4
Yuba	4	6	6								4	4	12
Totals	530	519	211	449	29	95	51	13	109	78	22	178	1,344
												591	1,965

**REPORT ON MEN DISCHARGED FROM CALIFORNIA CAMPS ON ACCOUNT OF TUBERCULOSIS,
September 1, 1918.**

[illegible]

BUREAU OF TUBERCULOSIS.

[illegible]

Field Work.

The bureau has been fortunate in having three intensive surveys made in Orange, Alameda and Sonoma counties during the year. Much good has been done not only in an educational way from these surveys, but many conditions that were contributing causes to tuberculosis have been eliminated. The careful work of the field worker has been invaluable.

Temporary appointments have been made from time to time since the draft in order to follow up the names of all men whom we thought needed care. The bureau had a field worker stationed at Camp Kearny for two months. A permanent investigator has also been stationed in Los Angeles to help with the work there. A dietitian has been placed temporarily, sometimes a week at a time, in some of the hospitals in order to assist them in the preparation of a balanced diet for patients and also to teach them conservation in the serving of food.

Special Investigations.

For six months the bureau made a survey in Los Angeles and San Francisco of conditions among the operatives who are employed in moving picture theaters. Conditions under which these men work in many instances disclosed the fact that not only was there a minimum of light and air for these men who work in excessive heat during all performances, but that there were no exits, and that while fire protection had been given to the audience, no arrangements whatever had been made for the operator. No toilet arrangements had been provided in most of the theaters and it would seem necessary not only from the standpoint of prevention of tuberculosis but along the lines of general sanitation that the condition in the booths be remedied. A superficial survey was also made of the elevator operatives and the rag pickers in San Francisco.

Indian Work.


In co-operation with the California Tuberculosis Association, the director has supervised the work in Fresno, Madera, Merced and Tulare counties. So much co-operation has been secured that in the spring the San Joaquin Valley Federation of Women's Clubs offered to build a hospital for Indians suffering from tuberculosis. The Commissioner of Indian Affairs offered to co-operate to the extent of furnishing a special nurse for six months. The California Tuberculosis Association and University of California Dental School have furnished a nurse and dentist.

California Tuberculosis Association.

The close co-operation between the association and the bureau has made a great deal of work possible that otherwise could not have been attempted. With the exception of Fresno, San Diego and Los Angeles, every tuberculosis city and county nurse is paid out of the proceeds of the Red Cross seal sale. Every bit of tuberculosis work locally is done through the various agencies of the state association. The last seal sale, reaching considerably over \$60,000, has made possible a great deal of work that could not have been done otherwise.

The State of California's Next Step.

With the return of hundreds of soldiers with tuberculosis, many of whom will migrate to California, the state must be assured that there will be some reimbursement such as was planned for in the Kent bill, introduced in Congress last year, reimbursing hospitals to care for nonresidents. A State Preventorium for children who are border-line cases of tuberculosis must be established so that these children need not be classed with adults suffering with tuberculosis and who also should not be deprived of an opportunity to attend school.



After the war there will be necessity for a convalescent camp not only for soldiers but for patients who have practically completed their cure in the various county sanatoria: they should then be transferred to such a camp, given special training for the kind of work that they can do best, so that the money that has been spent on them will be an investment. All of the larger institutions that are in process of construction plan also to provide inexpensive cottages that families may rent and yet be under supervision in the institution; this is a necessity and the supervisors have not only co-operated with the director in every possible way but in many instances have far exceeded our demands.

Educational Literature.

Thousands of pieces of educational literature have been distributed at the request of patients. "What You Should Know About Tuberculosis," "Tuberculosis Primer" (which has been translated into French and is being used as much in France as it is in California), "Sleeping Out of Doors," "Tuberculosis Don'ts" in all languages, "Spitting signs" in all languages, and special literature on insurance and compensation has been sent to all discharged soldiers.

REPORT OF THE BUREAU OF REGISTRATION OF NURSES, JULY 1, 1916, TO JUNE 30, 1918.

ANNA C. JAMMÉ, Director.

Historical Sketch.

The department for the examination and registration of nurses was established October 14, 1913, by virtue of a law approved June 12, 1913. In accordance with the organization of the State Board of Health this department became a bureau. The act provided that a director should be appointed by the board. The work of the bureau commenced on October 14, 1913, when the director took office. From January 1, 1914, to July 1, 1914, 4,831 nurses were registered without examination as provided by the act which required that "nurses graduated from a reputable training school connected with a general hospital may be registered without examination prior to July 1, 1914."

After July 1, 1914, applicants for registration were obliged to show satisfactory evidence of having graduated from an accredited school of nursing and to pass an examination conducted by the board. Requirements for accredited schools of nursing were formulated and approved by the board at their regular meeting in February, 1914. These requirements were sent at once to all training schools for nurses in the state and inspection of these schools was begun August 1, 1914.

There were found to be 81 schools of nursing; of these 69 were placed on the accredited list by action of the board during the first two years of the work. The number of students in training during this period was 2,465.

Five examinations were held from December 1, 1914, to July 1, 1916, aggregating 556 applicants.

Examinations.

The law requires that examination of graduate nurses for the certificate as registered nurse shall be held at least every six months. These examinations are held in Sacramento, San Francisco and Los Angeles. During the last biennial period eight examinations were held—three in 1916, three in 1917, and two in 1918. At the urgent request of the American Red Cross Nursing Service a special examination was held in August, 1917, in order to enable unregistered nurses to become eligible for enrollment in compliance with the requirements of the American Red Cross that all enrolled nurses shall be registered. Later in the year, on action of the board, it was decided to hold examinations three times each year, in February, June and October, to accommodate the increased number of applicants. The following table shows the dates of examination, the number entered, passed and failed:

Dates	Number entered	Passed	Failed	Percentage of successful applicants
October 18-19, 1916.....	150	121	29	81.13
April 18-19, 1917.....	212	174	38	82.09
August 22-23, 1917.....	157	142	15	90.45
October 17-18, 1917.....	236	185	51	78.30
February 20-21, 1918.....	212	194	18	91.51
June 19-20, 1918.....	255	216	39	87.7
Totals	1,222	1,032	190	

The examinations are written and occupy two days. The subjects of examination are arranged as follows for each day:

First Day.

A.M.

1. Anatomy and Physiology.
2. Hygiene and Bacteriology.
3. Communicable Diseases.

P.M.

1. Materia Medica.
2. Dietetics.
3. Nursing in Medical Diseases.

Second Day.

A.M.

1. Pediatrics.
2. Urinalysis.
3. Ethics of Nursing.

P.M.

1. Nursing in Surgical Diseases.
2. Obstetrical Nursing.

Registration.

From July, 1916, to July, 1918, 1,091 received certificates as Registered Nurse. Of these, 1,032 were issued on examination and 59 issued without examination, in accordance with section 8 of the law.

Table Showing Registration During This Period.

Years	On examination	Without examination (reciprocity)	Total
July 1, 1916, to July 1, 1917.....	295	25	320
July 1, 1917, to July 1, 1918.....	737	34	771
Totals	1,032	59	1,091

Inspection of Schools of Nursing.

In accordance with section one of the act, formal inspection of all accredited schools of nursing is made at least once each year. More frequent inspections are made when necessary. During the biennial period two inspections were made of each of the 72 accredited schools, and 54 additional inspections made, making a total of 198 inspections.

Inspection has been somewhat more extensive than in the previous biennial period and has included attendance at classes or lectures, witnessing technique in the operating room, methods of work in wards, and closer inspection of the Nurses Homes. In connection with each inspection the high school in the vicinity of the school of nursing has been visited. Co-operation between the high school and the schools of

nursing has been arranged in practically every school for nurses and certain of the theoretical subjects, as chemistry, physiology, nutrition and cookery, are given in the high schools either preparatory to entrance to the school of nursing or taken while the student is pursuing her professional course in the hospital. The inspector has attended these classes and given assembly talks to the girls on nursing in a large number of the high schools visited. It has been very gratifying to note the increasing interest of the work in high schools and the desire of the principals to encourage their students to take the preparatory scientific courses.

Accredited Schools of Nursing.

On July 1, 1916, there were 69 accredited schools of nursing in the state. Later, two were discontinued. On July 1, 1918, there were 72 on the accredited list, five being added during 1917-1918. Two schools were dropped from the list for one year and were later reinstated when it was found that they were meeting requirements. Following is a list of accredited schools July 1, 1918:

Schools of Nursing on Accredited List.

Hospitals with which school is connected	Location
1. Agnew Hospital.....	San Diego
2. Alameda Sanitarium.....	Alameda
3. Alta Bates Sanitarium.....	Berkeley
4. Angelus Hospital.....	Los Angeles
5. Buena Vista Sanitarium.....	San Francisco
6. Burnett Sanitarium.....	Fresno
7. Children's Hospital.....	Los Angeles
8. Children's Hospital.....	San Francisco
9. Clara Barton Hospital.....	Los Angeles
10. County Hospital of Alameda.....	San Leandro
11. County Hospital of Los Angeles.....	Los Angeles
12. County Hospital of Orange.....	Orange
13. County General Hospital of San Diego.....	San Diego
14. County Hospital of San Joaquin.....	French Camp
15. County Hospital of Santa Clara.....	San Jose
16. County Hospital of Sacramento.....	Sacramento
17. Dameron Hospital.....	Stockton
18. East Bay Sanitarium.....	Oakland
19. Emergency and General Hospital.....	Los Angeles
20. Enloe Hospital.....	Chico
21. Fabiola Hospital.....	Oakland
22. Fairmont Hospital.....	San Francisco
23. French Hospital.....	San Francisco
24. German Hospital.....	San Francisco
25. Glendale Sanitarium.....	Glendale
26. Hahnemann Hospital.....	San Francisco
27. Hanford Sanitarium.....	Hanford
28. Hazel Hawkins Memorial Hospital.....	Hollister
29. Lane Hospital.....	San Francisco
30. Loma Linda Sanitarium.....	Loma Linda
31. Mary's Help Hospital.....	San Francisco
32. Mary Jesse Hospital.....	Santa Rosa
33. Mater Misericordiae Hospital.....	Sacramento
34. Mercy Hospital.....	Bakersfield
35. Mt. Zion Hospital.....	San Francisco
36. O'Connor Sanitarium.....	San Jose
37. Pacific Hospital.....	Los Angeles
38. Paradise Valley Sanitarium.....	National City
39. Pasadena Hospital.....	Pasadena
40. Peninsula Hospital.....	Palo Alto
41. Pomona Valley Hospital.....	Pomona
42. Providence Hospital.....	Oakland
43. Ramona Hospital.....	San Bernardino
44. Redlands Hospital.....	Redlands
45. Riverside Hospital.....	Riverside
46. St. Joseph's Hospital.....	Berkeley
47. St. Joseph's Hospital.....	Upland
48. St. Joseph's General Hospital.....	San Bernardino
49. St. Joseph's Hospital.....	San Francisco
50. St. Joseph's Sanitarium.....	San Luis Obispo

51.	Santa Ana Hospital.....	Santa Ana
52.	Santa Barbara Cottage Hospital.....	Santa Barbara
53.	Samuel Merritt Hospital.....	Oakland
54.	Sequoia Hospital.....	Eureka
55.	Sierra Hospital.....	Sonoma
56.	St. Catherine's Hospital.....	Santa Monica
57.	St. Francis Hospital.....	Santa Barbara
58.	St. Francis Hospital.....	San Francisco
59.	St. Helena Sanitarium.....	Sanitarium
60.	St. Joseph's Hospital.....	Stockton
61.	St. Joseph's Hospital.....	San Diego
62.	St. Luke's Hospital.....	San Francisco
63.	St. Mary's Hospital.....	San Francisco
64.	St. Vincent's Hospital.....	Los Angeles
65.	The California Hospital.....	Los Angeles
66.	The Columbia Hospital.....	San Jose
67.	The Evans Hospital.....	Modesto
68.	The Hospital of the Good Samaritan.....	Los Angeles
69.	The Methodist Hospital of Southern California.....	Los Angeles
70.	The White Hospital.....	Sacramento
71.	Union Labor Hospital.....	Eureka
72.	University of California Hospital.....	San Francisco

Requirements for Accredited Schools of Nursing.

I. *The hospital.*

The hospital with which the school is connected shall have a capacity of not less than fifty beds and a daily average of twenty-five patients.

It shall provide for teaching and experience in surgical and medical nursing and in children's diseases. Each student must have the care of not less than twelve maternity cases, including labor and delivery, and the care of the infant.

It shall provide proper and adequate facilities for class instruction, such as a working library in which is included the more modern text and reference books, a skeleton, a manikin or charts and such additional auxiliary apparatus as the hospital may be able to afford. The classroom must be well lighted and provided with student's tablet chairs and a good sized blackboard. There must be a demonstration room and demonstration equipment as outlined in the pamphlet "Elementary Nursing Procedures." It shall provide a diet kitchen and the necessary equipment for teaching purposes.

It shall provide the necessary laboratory equipment for the teaching of chemistry, bacteriology and analysis of urine.

II. *Nurses home.*

Proper living conditions must be provided for the students. These must include a building erected for the purpose, or, where this is not possible, one suitable and adequate. Dormitories in upper story or basement of hospital will not be considered.

There must be individual sleeping rooms, or where rooms are sufficiently large, two may occupy the same room; sleeping porches are strongly recommended in addition to the regular sleeping rooms; sufficient furniture and one closet for each student.

One bath and one toilet for every ten students.

A reception room, a library, and, when possible, a good sized recreation room.

The nurses' home should be attractively but not expensively furnished. The service should be sufficient to maintain it in an orderly manner and provision should be made for the social life of the school.

III. *Dining-room.*

This room should be clean, well lighted and suitably furnished. The service should be prompt and efficient during the meals. There should be at least one waiter, or waitress, to every twenty students. The diet should be adapted to students engaged in arduous and exacting studies.

IV. *Faculty.*

A sufficient force of instructors must be maintained who are competent to conduct the instruction herein specified and shall consist of:

1. Superintendent of the training school who is a registered nurse and who must possess qualifications requisite for the administration of the school. She must have ability for teaching, capability for guiding the students in moral discipline and be able to maintain a high standard of educational and moral efficiency in the school.
2. A graduate night superintendent who is capable of assuming responsibility and of teaching the students under her supervision.
3. A full-time nurse instructor in a school of over twenty-five students.
4. A graduate surgical nurse who has charge of the operating room.
5. A staff of medical and other lecturers.
6. A dietitian who may or may not be a graduate nurse.

V. *Records.*

There must be a good system of keeping records, showing in detail qualifications for admission, physical condition and character, instruction, attendance at lectures, classes, demonstrations, practice and efficiency in class and bedside work. This complete record of each student must be kept from time of admission to graduation. Immediately on the completion of the course, a copy of this record must be made on the form provided and forwarded to the State Board of Health at Sacramento.

VI. *Affiliations.*

Hospitals unable to meet the requirements of capacity and daily average number of patients or the requirements of experience in any one major subject; namely, medical nursing, surgical nursing, obstetrical nursing and the nursing of sick children, will affiliate with an accredited hospital giving the required experience.

Admission of Students to Schools of Nursing.

Applicants to schools of nursing will be admitted on the following basis:

1. On presentation of satisfactory evidence of the fitness for the study of nursing as follows:
 - (a) *Character.* Testimonials of good moral character from a responsible person indicating that the applicant has obtained sufficient moral poise to conduct herself fittingly and properly during the term of training.
 - (b) *Certificate of sound physical condition and mental ability* from a physician in good standing.
 - (c) *Evidence of satisfactory scholarship.* Applicants may be admitted on a basis of instruction in English during the first two years of high school. It is, however, recommended that the subject be taken for three, or preferably four, years.

2. Applicants presenting a certificate from an approved secondary school showing they have completed with credit the subjects required in the theoretical preparatory course shall be admitted to full standing in the school of nursing with six months credit.
 3. Applicants presenting a certificate from an approved secondary school but who are deficient in any of the required subjects may be admitted to provisional standing until such deficiencies are removed. On presentation of credits for this work they will be admitted to full standing in the school of nursing.
 4. Applicants who do not present a certificate from an approved secondary school but who present satisfactory credits in the required subjects may be admitted to full standing in the school of nursing without credit.
 5. Applicants who do not present a certificate from an approved secondary school and who have had no instruction in the required subjects but who show exceptional intellectual and physical ability will take an examination before commencing the course of instruction in the following subjects:
 - (a) English, including composition, spelling, punctuation.
 - (b) Arithmetic, including fractions and decimals.
 - (c) History, American history and a choice of either civics, science or language, which have been pursued for one year.
- If the examination is satisfactory applicants will be admitted to provisional standing for one year on the following conditions: that students shall be entered in the high school in the locality of the school of nursing for the full year's course in the required subjects. On evidence of the satisfactory completion of these courses such students will be admitted to full standing.
6. Graduates of colleges or universities recognized by the Association of American Colleges may be admitted to advanced standing with one year credit. Candidates for this advanced standing must fulfill the requirements for the theoretical preparatory during the course or show by examination that such requirements have been fulfilled.
 7. Applicants who present credentials from accredited schools of nursing signed by the proper officials and giving full information concerning the courses pursued, the number of hours of instruction in each subject and their grading on each subject, also evidence showing the nature and amount of practical experience in the services of the hospital and their efficiency record in each service, also evidence that they have complied with the general ruling as to character and physical condition will be admitted to advanced standing as will be equitable in accordance with the evidence submitted.

Credentials.

Credentials and examination grades must be forwarded to the Bureau of Registration of Nurses, Sacramento, before an applicant is formally admitted as a student to any accredited school of nursing. A card of admission will then be forwarded to the applicant which will indicate advanced, full, or provisional standing. When those admitted to provisional standing have complied with requirements for full standing, a card indicating this will be forwarded to the

applicant and a copy kept in file in the office of the bureau. This will indicate her eligibility for examination for certificate as registered nurse on the completion of the course, provided she has met in full the requirements of the State Board of Health.

Combined Courses in Universities and Colleges.

Combined courses for the degree of Bachelor of Arts or Bachelor of Science and Graduate Nurse have been established with the approval of the State Board of Health at Stanford and California and in Mills College. The arrangements of these courses meets the requirements for graduation from an accredited school of nursing and gives the student the advantage of taking the scientific theoretical subjects in the laboratories of a college during three academic years which satisfies the requirements of one year in the hospital. Two additional years are required for the three academic years are required for the professional course. A number of students are now taking these courses at University of California and at Stanford. The work at Mills College will not begin until October, 1918.

Publications.

The following publications have been issued during the biennial period:

1. Register of Nurses for 1915, 1916, 1917.....January 1, 1918
2. Survey of Schools of Nursing.....March 1, 1918
3. Requirements and Curriculum.....July, 1916
4. Requirements for Accredited Schools of Nursing.....May, 1918

Development.

There has been a great increase in the activities of the bureau during the biennial period, especially since the entrance of the United States into the war. The bureau continues to be the clearing house for all matters having any relation to nursing. We have been able to co-operate with the government in the endeavor to increase the production of nurses and also to hasten certification of graduate nurses for the Red Cross nursing service. The great need for a larger production of nurses to meet the needs of the army, navy and Red Cross has had a stimulating effect on schools of nursing, on universities and high schools, as also on young women in arousing a desire to enter upon this form of service.

The work in the office has increased necessitating the employment of additional clerical force. The work outside the office in the field of inspection and in co-operation of universities and high schools has demanded much of the Director's time and necessitated absence from the office for about two-thirds of the time.

In order to give closer attention to the work in the southern part of the state and to obviate loss of time and expense in travel, it has been considered necessary to appoint an assistant inspector with headquarters in the State Board of Health offices in Los Angeles. The Civil Service held an examination, open to applicants in the United States, in February, 1918, and from the list submitted Miss Kate Sherrill Douglass, P.N., was appointed on June 6, 1918.

Miss Elizabeth Pack, R.N., Assistant to the Director in Sacramento, resigned May 1, 1918, to enter the navy nursing service. This position has been temporarily filled pending an examination by the Civil Service Commission.

The result of the work during the biennial period has been extremely satisfactory, due, to a great extent, to the hearty co-operation of all those concerned in the education and training of nurses. Step by step, we have worked out a system in California which, if not yet complete, is showing results in the increased interest of our communities in their hospitals and training schools for nurses. Since the beginning of war activities in this country, hospitals and schools have been very much handicapped by the increased cost of supplies and food and from the withdrawal of a large number of executives in the schools; but despite these handicaps, the hospitals are showing magnificent spirit in endeavoring to meet the demands placed upon them and to fulfill their duty to the public. A marked change in hospital administration, also in training school work, will probably be seen in the next few years, should the war continue. The functions of the bureau will necessarily have to be increased, and it may be anticipated that provision will be made for the training of another class of workers in the interest of the sick which may necessitate a special preparation not as extensive as the preparation for the registered nurse.

The demand for public health nurses is increasing continually. Through the influence of the bureau special summer session courses have been instituted for public health nurses at the University of California. Schools of nursing have been urged to send their senior students to these courses and also to give a certain amount of public health experience during the course of training as an elective in the third year. This latter idea is being taken up rather slowly, but it is hoped, as the opportunity it affords for the student will be realized, that this special instruction will find favor with many of our schools. The war has already opened up many opportunities and shown us our possibilities for the greater development of our work. This will undoubtedly increase during the coming years and we may look for added stimulus in carrying on the functions of this particular Bureau.

REPORT OF THE BUREAU OF SANITARY ENGINEERING.

C. C. GILLESPIE, C.E., Director.

VALUE OF THE BUREAU TO THE STATE.

As at the end of the last biennial period, the staff and appropriation of this bureau continue entirely inadequate to cope with problems referred by the Bureau of Administration, health officials and the public, and to undertake much needed investigation along numerous lines of sanitary work necessary to the health and welfare of the state.

At the outset, it is pertinent to point out the actual money value to the state of the work of the bureau. It is not difficult to evaluate these benefits. The Bureau of Sanitary Engineering is comprised of technical specialists in this particular branch. It is made up of men who make this business their life work. They are trained in its fundamentals and their experience is always widening by daily contact with sanitary engineering developments and with the many city engineers and others considering sanitary engineering projects for their particular localities. As a result, the engineers and analysts of the bureau are obviously in a position to give correct advice on such matters which might be difficult or impossible to obtain elsewhere, and to forestall many ill-considered outlays for sanitary projects. In most cases plans are thus perfected while the work is still in the formulative stage. The law requires that plans for sanitary projects shall meet with approval by the State Board of Health. It is merely carrying out the law to provide for as intelligent approval as possible. Seldom do such changes increase the cost. More often they result in an actual saving to the community. In one city alone in California a \$200,000 saving was effected through the advice and insistence of the bureau. This sum is more than three times the biennial appropriation of the bureau. In another community a \$12,000-outlay, which never would have given the success expected, was abandoned on the advice of the bureau and a \$6,000-outlay of a different and more suited type built. Such savings are immediate. They more than justify the creation of the bureau and its more substantial enlargement.

In all sanitary projects undertaken, the bureau insists on farsighted planning to anticipate and meet, as far as possible, the demands and developments of the distant future, but at the same time it endorses a program of construction as the needs develop. Thus a community may feel that there is a reasonable certainty that the portions of the plant built today will fit into the works of the future and need not be abandoned as a result of later development. One of the most serious mistakes to be noted in sanitary engineering in California, as inherited from the past, is the gross oversight of such principles. Designers have failed to analyze the conditions, present and future, and naturally they have failed to lay out proper works. One finds "septic tanks," representing hundreds of thousands of dollars, in wide use in California, and yet at the time they were built experienced sanitary engineers knew that the septic tank by itself was only the preliminary stage in sewage treatment. Notwithstanding this, there is scarcely a septic tank of the hundreds in California that is designed or located to fit into a logical

enlargement of the plan. Obviously, such tanks will continue to be gradually abandoned as the demands for higher grade effluent become more insistent.

Besides basic errors in projects, there are a number of common faults which the bureau does much to prevent in the works now built. In sewer systems we often find inadequate grades or poor use made of natural grades; lack of provision for ventilating and flushing sewers, resulting in stoppage and perpetual cesspool odors at manholes; no attention paid to making water-tight joints, resulting in overtaxed treatment plants when the sewers are laid in wet ground, or in an accumulation of roots in a sewer running close to trees; inadequate manhole openings, making maintenance difficult and costly; poor use of syphons; no attention paid to sewer gradients at junctions; poor selection of sewer pumps as to size and type; use of screens which are not easily cleaned; no provision for disposal of screenings; too little attention paid to possibilities of water pollution, to ease of sanitary disposal of the sewage and proper usage of effluent on sewer farms, to special local conditions or to future growth.

Sewage treatment plants plans are often at fault in respect to selection of the type of plant best suited to local needs; capacity of works, present and future; size and number of units; future requirements of effluent and disposal and means of meeting such demands; effect of industrial waste on the treatment; dilution and dispersion if in tidal arms; metering flow of sewage; careless use of by-pass arrangements; lack of operation possibilities and lack of provision for handling and disposing of sludge and screenings.

There is another phase of sanitation in which the bureau helps conserve the resources of the state. I refer to the sewage disposal problem of summer resorts, hospitals and the like in unsewered districts and to the many large waste-producing industries of great value to the state. It is a fact that the tendency is to underrate the waste disposal problem and even to give it no thought in selecting a location until the consequences of a poor sewage disposal make themselves felt; then either the public is compelled to suffer a permanent nuisance or the establishment must establish a sewage disposal usually rendered exceedingly expensive owing to the fact that there are many obstacles and few natural advantages. Almost without exception, establishments such as these are a part of the resources of the state. In solving the waste disposal problem the bureau serves the public by abating a nuisance and contributes to the resources of the state by helping the enterprise in one of its problems.

The chief work of the bureau, however, deals with the prevention of spread, contrasted with the cure, of water-borne diseases, including typhoid, dysentery, diarrhea, cholera, etc., by applying principles of sanitary engineering to the purification of water and the sanitary disposal of sewage. In addition, it has to do with the general improvement of quality of water supplies, and the disposal of sewage in the least offensive manner, the control of stream pollution by sewages and offensive trade wastes, the sanitation of swimming pools, and plumbers' licensure.

Those typhoid measures directly applied by the bureau include the following:

- (a) Detection of polluted supplies by laboratory analyses and field surveys of water sources and watersheds.
- (b) Requiring the installation of proper water and sewage treatment works and seeing that they are conscientiously operated.
- (c) Preventing the pollution of streams used for drinking purposes in the raw state.
- (d) Encouraging the installation of sewers and sanitary disposal to replace cesspools and privies.
- (e) Preventing the use of sewage to water vegetables used as human food.
- (f) Prevent the taking of shellfish from sewage-polluted flats.
- (g) Placarding polluted streams in vacation regions and requiring sanitary equipment and accommodations in summer resorts.

Other means of typhoid control, notably vaccination, detection of carriers, control of milk supplies, etc., are in the hands of other bureaus and departments.

The net result of all the efforts at typhoid control has been to reduce the typhoid death rate per hundred thousand in California from 13.6 in 1914, the year before the bureau was created, to 9.7 in 1915, 7.1 in 1916, 7.4 in 1917 and indications are that a rate of 6.8 will be accomplished in 1918. The yearly reduction in typhoid deaths averaged 8.8 per cent for period 1910 to 1914, inclusive. The bureau was established in 1915. The average annual reduction since that date has been 15 per cent, or, the typhoid drop has been speeded up 200 per cent in these recent years. Had the former rate of reduction continued, there would have been 280 additional deaths from typhoid in the past four years, for the most part youths, on the threshold of a useful career, for such is the selectiveness of this disease. A loss to the state in vital capital of \$1,400,000 has been avoided.

California is now near the lowest of the states in the typhoid death rate and yet there is still a vital loss to the commonwealth by this disease, costing the state over \$1,050,000 per year, which can be reduced only by measures for improved water supplies, sewerage and sewage disposal, cleaner streams, cleaner milk, vaccination, detection of carriers and the general correction of filth conditions.

A quotation from the Ohio Public Health Journal of May, 1918, indicates the estimate of the Ohio State Board of Health of the work in California:

"California's Record in Lowering Typhoid Rate."

"It would be difficult to find better statistical proof of the proposition that typhoid fever is preventable than that which is provided by a comparison of typhoid death rates for the past decade in Ohio and California. Starting from approximately the same level, both these states have decreased their typhoid mortality. California's decrease has been so much more rapid than Ohio's, however, that the Pacific coast commonwealth's rate is now only half that of this state."

About 9,000 samples of drinking water have been analyzed for their safety and fitness for domestic consumption by the bureau, on which 63,000 determinations have been made. Upwards of 45 cities and towns have installed water disinfection on the recommendations of the bureau, until now 1,200,000 people, over half the urban population of the state, is supplied with water from sources equipped with disinfection works. No small cut in typhoid is due to this one line of endeavor. It is significant that, except for a small epidemic at Merced Falls, there has not been a water-borne outbreak of typhoid in California in the past three years.

However, chlorination and sanitary equipment works generally, without exception, are not fool-proof. All must have constant and conscientious attention and one of the big tasks of this bureau henceforth must be the periodic supervision of plants at frequent intervals. Inability to do this explains the outbreak at Merced Falls cited above.

The bureau is also an important factor in the general sanitary uplift into which the state and nation are entering. Almost solely through its persuasion, sewers have been installed in Folsom, Corcoran, and are about to be installed in Manteca, new sewage disposal plants have been put in or are under construction at Reedley, Folsom, Folsom Prison, Beverly Hills, Ukiah, Santa Barbara, Kingsburg, Paso Robles, Stockton, and hundreds of homes and institutions. Vital improvements in operation have been effected in the sewage treatment and disposal of nearly every plant which the bureau inspects. These accomplishments do not take into account installments or improvements made on the initiative of the community itself.

In pursuance of the above work, under the law there are upwards of 700 water supplies and sewer systems which the bureau is obliged to examine at least once for the purpose of licensing. It is to be regretted that only about 150 have been inspected to date.

To the bureau is also delegated the licensing and regulation of swimming pools, now numbering nearly 300 and increasing at the rate of three or four a month. Progress on this has been limited to mere registration through lack of field men.

Plumber's licensure in the hands of the bureau has been quite a task. There are over 4,000 plumbers, for whose registration and examination the bureau is responsible.

These notes show only the accomplishments of the bureau from a purely health conservation standpoint. Demands are constantly received for assistance in relief from some purely nuisance condition and the bureau endeavors to assist in relief, believing that by so doing it aids the sanitary movement, as the public generally still looks on noxious odors as sources of disease and their eradication is still one of the tasks of health officials.

The above notes are not only justification for the formation of the bureau, but for its greatly increased financial support.

FUTURE RESPONSIBILITIES OF THE BUREAU.

With better support the bureau can profitably enlarge on every line of past activity and particularly the following:

1. Stream pollution surveys to locate and measure the importance to the commonwealth of each source of pollution and to accomplish the

elimination of dangerous pollution. Until the State Board of Health has concluded such surveys on each stream watershed, it can not intelligently fix a standard of cleanliness for a given stream nor pass on applications for sewage disposal into it. Accurate data and information are the need of the day.

2. The improved operation of sanitary works. In California there are no really high-grade operators of water and sewage treatment plants. And yet faithful and intelligent operation of such plants is the only protection the public has. Without it the plants are a disgraceful ornament, wasteful in time and money, failing to secure their functions or protect the public health, and so become a local argument against further outlay. There is but one means of attacking this situation. The bureau must stimulate local interest by carefully inspecting the plant and conferring with the operator at frequent intervals. Record sheets must be devised and records kept, copies of which must be submitted to the bureau for careful scrutiny and check as to the evident care in operation. Such reports are being received weekly from four waterworks in the state where the raw waters are most dangerous.

Our experiences in chlorination are of interest, this being the prevailing water treatment in California today and the only safeguard against disease where it is used. Nine or ten chlorinators have been under observation, some of which were under private ownership and others operated by the communities. The results of the inspection showed that in about 50 per cent of the inspections the machines were out of commission or in such shape that they could be operated only intermittently. There seemed to be the following explanations for these decidedly unsatisfactory findings:

- (a) The machines are easily corroded by moist chlorine gas or strong chlorine solutions and so far metals or alloys which will resist the corrosion have not been discovered. Certain grades of chlorine gas received on this coast are not pure and are exceedingly corrosive. Much trouble has been encountered with certain cylinder valves due to their lack of sensitiveness and the suddenness of shock with which cylinder pressures reach the machine, often bursting some part.
- (b) Parts of the machine quickly become eaten out all together, or plugged, and the regulating valves and pressure regulators, which must be depended upon for keeping up the desired feed of gas, become sluggish and finally inoperative, with the result that the dose of chemical, especially at night, is considerably below that necessary for disinfection.
- (c) The operators to whom the task of operating these machines is delegated are not ordinarily men of much mechanical bent and without some higher supervision these conditions are not corrected and they are often unreported.
- (d) When reported, and new parts are needed to replace defective ones, it has been found that the chlorinator manufacturers and their local agencies are, for some reason, exceedingly slow in making the replacements.

- (c) None of the above situations have ever been reported to the bureau or come to its attention except through its own investigation. A case in point is Merced Falls. Probably no other chlorinator in the state has obtained so little attention by the management or the operators and quite so much insistence by the State Board of Health that it be operated properly, on account of the serious pollution in the water it is dependent upon to correct. As a result, during the month of May, 1918, one of the worst water-borne epidemics in the state, expressed as a rate, broke out in the town. A case rate of at least 4,500 per 100,000 population occurred and 30 per cent of the town suffered from some more or less severe intestinal ailment. All this demoralization could have been avoided, beyond the shadow of a doubt, had the management and the operators appreciated their responsibilities or even worked in co-operation with the State Board of Health.

A very definite procedure has been worked out by the bureau to make the operation of chlorinators more effective but the plan is not fully operative because it requires a great deal more periodic inspection and co-operation between the local attendant and the bureau than we have been able to make. The plan includes:

- (a) Improvements in the installation of the apparatus whereby the flow of water can be measured at any moment, the cylinder of chlorine weighed, and the housing so constructed and insulated that the fluctuation of temperature on the inside is reduced to a minimum. In very few installations are these features now incorporated.
- (b) The keeping of a weekly record of operation which shall show for each visit to the machine the flow of water at the time; the flow of chlorine at the time and the flow at which the machine was set to feed; the calculated dosage as found and as set; the air temperature inside the house and the readings of the various pressure gauges; weight of cylinder once a day, or as often as the chlorine consumed totals an amount which can be weighed; the calculated actual dosage based on the chlorine consumed and the amount of water treated over the same interval. A copy of this report to be sent to the State Board of Health on Monday morning of each week with a letter describing any difficulties or defects interfering with the operation of the machine.
- (c) The installation of an emergency chlorinator outfit consisting of a barrel in which bleaching powder may be put in solution and a feeding device for regulating its flow into the supply, to be used at times when the chlorinator is out of commission. Until some such program is made operative it is clear that no material improvement has been accomplished in the treatment of water supplies through chlorination.

In the improved operation of sewage treatment plants the bureau has been unable to devote any time or attention during the past year, other than inspection of a few of the plants at intervals of several months, but it is highly important that the same regular attention be given to sewage treatment plants as to waterworks.

4. Improving the installation of water systems with good sewage disposal, cleaner and safer water supplies and the more extensive use of filtration according to modern practice. All filter plants in California represent an antiquated type. There is a noticeable demand for cleaner water in Sacramento, the Sierra foothill cities and the lower San Joaquin towns. Antioch, Pittsburg and Martinez—also Vallejo and Benicia will no doubt decide on filtration shortly after the war.

(6) Conducting long-time studies along lines of research and experimentation as an aid to the communities of the state in determining and demonstrating scientific facts entering into general sanitary engineering problems. In the laboratory there is no end of possibilities along lines of original research. The test for presence of sewage in water depends on the certain identification of certain specific sewage organisms. In the present state of this determination there is always an element of uncertainty in the conclusions by reason of the fact that in Nature there are harmless organisms which also respond to the culture media now used for the sewage organism, *B. coli*, and because the technique and interpretation are far from standard, laboratories in many parts of the country are working on this problem in an endeavor to reach reliable conclusions on this most important test. The laboratory of the bureau has done enough work on the problem to convince itself that its study requires a systematic plan of work and the ability of some one to concentrate on it for a long period.

In California a careful study of the growth of algae in water supplies is very much needed. Nearly two million people in California depend on waters subject to more or less storage and hence to the development

of serious algæ growths. None of the localities make any attempt to handle this algæ problem scientifically. It is very evident that the "hit or miss" work now done on the problem is not yielding the best results, neither from the standpoint of costs nor the elimination of the trouble. As the problems are all very similar in each community, it seems plain that duplication of study of the organisms by each locality is unwise and that the same results can be more cheaply and perhaps better obtained if the bureau were to carry on the necessary investigative work.

Another profitable line of experimentation is on sewer farms. In 1916 the United States Department of Agriculture began the study of a few typical sewer farms in California with a view to deciding the best means of preparing the land, applying the sewage and croppage. However, progress was stopped due to the declaration of war. The planning of the investigation, however, will serve to indicate the importance attached to it.

In filtration of water supplies California has not made as rapid strides in adopting modern filtration as has the East. The attitude of the public in California is that it "wants to be shown." There is no doubt but that once the possibilities of modern filtration can be demonstrated, California cities will adopt it widely. In 1916 the city of Sacramento, which was then considering filtration of the Sacramento River water, could no doubt have been convinced of the superiority of filtered Sacramento River water were an experimental plant built. Unfortunately, the proposition did not go through but if it had it would have been highly desirable, from the standpoint of the movement, for the bureau to have responsible for the operation of the plant.

The cases cited above are merely a few specific instances where time and money can be spent by the state in advancing state sanitation more economically than can each community singly. Other instances are constantly making their appearance. It is to be hoped that in the future the activities of the bureau can extend along this line.

(7) Garbage disposal is a problem of a magnitude only slightly less than sewage disposal. It is a specialized field for sanitary engineers, yet one which every town trustee feels competent to solve. The result is a wasteful policy or none at all. As a result of food conservation measures, utilization of garbage on a profitable basis has properly come to the forefront. The highly complicated process of garbage reduction, recovering products of value, is being considered by the larger cities of the state, as is also the feeding of garbage to hogs. Both of these means of disposal will, it is safe to say, remain as permanent institutions. Systematic study should be applied in putting them on the best possible working basis. At the present time each community, starting in entire ignorance, attempts to work out the problem for itself. There is an excellent opportunity for the bureau to take hold of this problem and apply information acquired in the various communities to the solution of the problem of a particular community.

(8) Swimming pool sanitation. The public natatorium, municipally or privately owned, is becoming extremely popular, especially in the interior and warm-belt towns throughout California. Medium-sized towns like Madera, Tulare, Visalia, Selma and scores of others find that these pools are not only popular but profitable. In addition,

schools, the Y. M. C. A. and similar public institutions are providing these pools as part of their attractions. The growing popularity of swimming pools in California is shown in the following table containing all pools whose dates of installation are known to us:

Year	No. of pools built	Year	No. of pools built
1880-1890	5	1911	8
1890-1900	11	1912	9
1900-1905	7	1913	11
1905	6	1914	10
1906	4	1915	21
1907	0	1916	31
1908	5	1917	23
1909	10	1918	6±
1910	10		

In most pools the water is purchased from the public supply at a high total cost per filling. The result is that the water is not changed with the frequency necessary to keep it clean. Where the water is heated, the item of fuel expense works toward the same end. Need of regulation is urgent.

The last legislature enacted a swimming pool law, as proposed by the State Board of Health. The main provisions of the law are the requirement of the holding of a permit from the State Board of Health of every public natatorium and the delegation of the power of regulation to the State Board of Health. In pursuance of the act, the bureau prepared application blanks which contain a list of fifty-seven questions, the answers on which are intended to be sufficient for a decision on the granting of a temporary permit, pending inspection at a subsequent date. The application blank was sent to all the swimming pools in the state, numbering about two hundred and sixty. Granting of final permits is now held in abeyance pending the adoption of rules and regulations of general application. Little accurate or comprehensive data is extant on swimming pool sanitation, particularly as regards the treatment of the water supply. Accordingly, the bureau has had to undertake studies of its own on the various types of pools in order to be able to adopt regulations which shall be thoroughly sound and necessary. So far two types of pools only have been investigated; one, the pool of the Y. M. C. A. in Berkeley; the other, the pool of the Idora Park Company, Oakland. The former is a well-constructed, tile-lined pool for which the water is obtained from a tunnel on the premises, heated, refiltered and recirculated for three days to two weeks, when the tank is completely emptied. Applications of bleaching powder solution are made to the pool in a crude way each night. Several hundred analyses were made on this pool over a three-months' period, testing out various modes of operation. The following conclusions are quite definitely established:

- (a) Refiltration of the swimming pool water at the rate of three gallons per square foot of filter per minute, such that the entire contents of the pool are recirculated during each swimming day, will maintain the clearness of the pool water without the use of

- (b) The filter has little effect on the bacterial content.
- (c) The bacterial content of the pool increases rapidly with use so that within one or two days at the outside the pool water contains as many as thirty to one hundred thousand bacteria per cubic centimeter; this without treatment.
- (d) The use of chloride of lime in the manner described appeared to be quite haphazard but it is apparent that if carefully distributed and applied at a time when the contents of the pool are still in motion, a dose of ten to twelve pounds of bleaching powder per million gallons of water is effective in building up a solution in the pool which is not objectionable to bathers and yet will keep down the bacterial content of the pool at or below a drinking water standard for at least twenty-four hours.

The investigation of the pool at Idora Park is much more extensive and has not yet been completed. This is one of the larger outdoor fresh-water pools of the coast, the water for which is obtained from wells on the premises, refiltered at the rate of two gallons per square foot of filter per minute and recirculated once in three days, assuming eight hours' filter operation each day. In addition, the effluent from the filter is chlorinated. The analyses indicates quite clearly that chlorination, using a dose of 7.5 pounds per million gallons on week days and 9.6 pounds per million gallons on Saturdays and Sundays, is sufficient to maintain a bacterial count below one hundred except on days of very heavy patronage. For such conditions we have not yet established the necessary dose. Development of algæ growths in the pool is an important problem in this instance and the further study of this pool will be aimed principally at feasibility of controlling the growth. The plan of study is first to note the influence of filtration on the algæ content and toward the end of the season, when the pool will be emptied, to try copper sulphate. The growth of algæ in the pool increases greatly the difficulties of filter operation, as the sand surface clogs in a short time and runs shorten to three or four hours.

Some work has been done in the laboratory on the identification of the bacterial flora of swimming pools, especially the coccus group, with a view to determining whether the members of the group are present in sufficient amount to make this group a better index of the sanitary conditions of the pool water than is the total count or the *B. coli* content. This investigation has not been completed. The indications are that members of the coccus group are not present in sufficient quantities to be a sensitive index of the objectionable contamination, but possibly some other species will be found to meet the requirements of a good index.

On account of the extremely rapid rise in the popularity of swimming pools and the great increase in the number of new pools with attendant inquiry directed to this bureau, it became necessary to prepare a set of statements indicating the scope of future regulations. This material has never been issued in pamphlet form but has been multigraphed and sent to a considerable number of pool managers.

(9) Summer resort sanitation. Regulation of both sewage disposal and water supply is urged in these pleasure places. Calamity and fear

of vacationing in the mountains will surely result if sanitation in these places is not put on a high plane. Aside from the preparation of a bulletin on sewage disposal at summer resorts and the inspection of about twenty resorts, the bureau has made little progress on this line of work.

(10) Oyster bed regulation. In a good many sections, especially about San Francisco Bay, a considerable oyster industry is springing up. Native oysters and Eastern oysters transplanted for fattening are grown here. In some cases the beds have been shown to be polluted and from the habits of the oyster the bivalve is polluted to far greater extent than the water in which it lives. The problem includes long-time pollution studies to learn what beds are suitable for the industry, what beds are not, the source of the pollution and an analysis of cost, and the like, to determine whether the industry is worth the cost of protecting the beds from pollution. On account of the absence of legislation covering this subject, the State Board of Health devised and the 1917 legislature enacted Chapter 48 which, in brief, places the definition of polluted area in the hands of the State Board of Health and empowers it to prevent the taking of shellfish from duly placarded areas.

(11) Examination of ice and ice supplies. It is a well-known fact that ice manufacture does not destroy all living organisms. Freezing does eliminate a great deal of the pollution but the percentage is not high enough to yield a safe ice if made from badly-polluted waters. Hence, the sources of water for ice manufacture should be examined and certified. Likewise, the handling of ice is subject to material regulation, though this is probably a problem for local health concern. The bureau has not been able to undertake this work.

(12) Examination and certification of bottled waters as unaffected by sewage contamination. It is a serious enough reproach that bottled waters are necessary and they should be known to be *not unhealthful* in their sources as well as that they shall possess the therapeutic values claimed. In spite of repeated requests for analyses on bottled waters, the bureau has been unable to pursue this work.

NEW WORK DEVELOPING.

In addition to the foregoing matter, the following have developed as exceedingly important since the last biennial report:

(1) Co-operation with military authorities. The matter of sewerage, sewage disposal, water supplies and purification, of the army and navy camps and communities round about, has given the military officials in charge a great deal of concern and requests for the assistance of the Bureau of Sanitary Engineering on these particular problems have been freely made during the past year. A large percentage of our principal work in these last twelve months has been in co-operation with the military authorities. Report was rendered on the sewage disposal of Camp Kearny and the water supply, as furnished by the city of San Diego, was under investigation until the bureau felt assured that the method of treatment was adequate and dependable. In Camp Fremont the bureau actually made the surveys for the sewer system and co-operated with the Civilians' Engineers Commission in the design of

the system. At Mather Field near Sacramento the bureau has advised the commandant in charge of construction on the sewage disposal and water supply. The same is true of March Field near Riverside. At Mare Island the principal difficulty has been with the quality and quantity of the water supply. This has been a particularly troublesome problem to the Mare Island officials and the city of Vallejo in which it is located. The bureau has spent a large amount of time on the problem. While the question of quantity has not yet been satisfactorily adjusted, it is felt that the safety of the supply has been much improved.

Practically all of the military establishments in California are making use of the laboratory facilities of the State Board of Health for frequent control analyses of the water supply.

(2) Sanitation of water supplies and sewage disposal of war industry plants, shipyards, etc. With a view of maintaining a high standard of health among the employees in these lines of work, the bureau is being called upon repeatedly by the United States Shipping Board to have corrected some menacing condition in the water supply or sewage disposal, especially in the communities where the workmen live. In California important shipyards and war work are centered in Eureka, San Francisco, Benicia, Los Angeles and San Diego. In Benicia and Eureka the conditions surrounding the water supply are particularly menacing and the greatest amount of vigilance and checking up are necessary.

(3) Registration of plumbers. One of the enactments of the 1917 legislature was the plumbers' registration act which provides, briefly, for the appointment by the State Board of Health of a plumbers' examining board in each county of the state and the registration and examination of practically all plumbers in the state by these boards, under the direction of the State Board of Health. The administration of the act has been placed in the hands of this bureau. The work has proven to be extremely time-consuming, both in the appointment of suitable local examining boards and the registration of plumbers. It is estimated that fully fifteen per cent of the time of the bureau has been devoted to the enforcement of this particular act to date, which has included the appointment of the boards and the registration of plumbers. The examination is yet to be held. There are approximately 3,400 plumbers to be examined. The act provides for the payment of a fee of \$2.50, \$1.00 of which is paid to the contingent fund of the State Board of Health, presumably for the administration of the act, though by all odds and bulk of the administration has been provided by the bureau and the expense of the work has had to be met out of the bureau's own appropriation.

There have already developed a number of serious weaknesses in this plumbers' registration act. In the first place, it limits itself to the plumbers who install work in cities and towns having a public sewer system, provided that the plumbers working therein are not registered and examined for their fitness to install plumbing by the local board of health. It seems to be a fact that plumbers doing work outside of the incorporated communities should be regulated considerably more than those in the communities, which in most cases are now subject to more or less local regulation. Furthermore, the act provides explicitly

only for the examination and certification of plumbers and does not clearly provide for the preparation of a state plumbing code and the inspection of the plumber's work to see that he works in accordance therewith. Again, the act does not provide for the reimbursement of the local examining boards except for the examination of the plumber, of which only one is required. The renewal fee of \$2.00 per year is to be paid to the State Board of Health, without provision for reimbursing the local plumbing boards. Under the circumstances it is anticipated that it will be difficult to secure members for the plumbing boards once the examination is completed, as the duties will be largely inspection, and without provision for compensation, there is little likelihood that members will wish to spend their personal funds and time on the work.

It is highly desirable that this act be either repealed or amended in the following respects:

- (a) Providing for the registration, examination and certification of all plumbers who personally install plumbing work in the state of California, regardless of whether the work is within or without the limits of an incorporated community and whether there is local supervision of plumbing matters.
- (b) The formulation of a state plumbing code. Several other states and societies are working on this subject and no doubt a national code, after which the state codes may pattern, will be gotten out.
- (c) The appointment of a plumbing inspector as an independent office, or under the direction of the State Board of Health, with two or three assistants, to enforce the state plumbing code.
- (d) The providing of ample funds for the proper enforcement of the act.

RECENT SANITARY ENGINEERING LEGISLATION IN CALIFORNIA.

The 1917 legislature has enacted or amended the following statutes:
Chapter 754. Amended Domestic Water Supply Act so that the State Board of Health has supervision over both physical and hygienic aspects of quality of supply. Can now require reports of operation of plant, appointment of operators satisfactory to the State Board of Health, addition or modification in plant or new plants, approval of plans; all on severe penalties, including fine or injunction for failure to comply. Almost all new projects in water supply are now submitted to the bureau for opinion. The communities seldom submit plans for changes in the system. Experience shows, however, that it would be desirable, from the standpoint of the community, to consult with the bureau on modifications as well as complete installations. A start has been made on receiving reports of operation of plants. Reports received are carefully scrutinized and desirable improvements pointed out by the bureau; or if necessary, a representative endeavors to make a visit to the community in question. So far the bureau has not exercised its prerogative of appointing operators who shall meet with its approval.

Chapter 600. Amended Sewage Disposal Act to give State Board of Health comprehensive supervision over nuisance and hygienic aspect of disposal of sewage, garbage and offensive industrial wastes in streams,

lakes, salt water or on land. Can now require reports of operation of treatment plants, appointment of operators satisfactory to State Board of Health, approval of plans, additions or modifications in plant or new plants; all on severe penalties for failure to comply, as under Water Act. Most communities now submit plans for new work for approval by the bureau but, as in the case of water supplies, seldom are plans for modification or extension submitted, though this would be highly desirable. The bureau exercises its report prerogative by requiring reports from users of sewage on sewer farms, in particular, to discover the use of sewage on garden truck used green for human food. There are approximately seventy sewer farms in California.

Chapter 63. Licensing of swimming pools under recent state legislation. All pools have been required to apply for permit from the State Board of Health to operate or to make improvements and to have plans approved by State Board of Health. Application requires answer to some sixty questions bearing on healthfulness and cleanliness of the pool. Temporary permits are granted, pending investigation. These must be kept on display at the pool. It is intended to devise swimming pool regulations as soon as data accumulated is conclusive. About 210 pools have applied for permit.

Progress on this act is limited to conducting intensive study of water supply of swimming pools. On pool under investigation study includes study of effectiveness of filtration, with and without the use of artificial coagulant, effect of bathing on appearance and bacterial counts in pool, effect of various modes of swimming pool disinfection, *e. g.*, bleaching powder applied to pool nightly, bleaching powder solution added to circulating system, use of chloramine compounds applied to pool nightly. Contemplate study of coccus group of bacteria with view of determining if this group is a better index of the danger in a swimming pool than total count.

Chapter 48. Legislation passed regulating taking of shellfish from polluted water. State Board of Health determines areas from which shellfish may not be taken. No investigations along this line have yet been made.

Chapter 65. Requires the registration of all plumbers personally installing work in incorporated towns in California having a sewer system, and their examination by county examining boards appointed by the State Board of Health and subject to its jurisdiction. Plumbers passing the examination receive a certificate of competency, renewable each year. Progress on this act has been limited to the appointment of examining boards in all counties affected by the act and registration of practically all plumbers in the state, numbering about 3,400. It is intended to hold an examination in the near future and to grant certificates of competency to the plumbers passing.

This law appears to be weak in several respects. In the first place it applies only to plumbers working in incorporated communities having a public sewer system and the experience of plumbers and health officers is that the plumbing work most in need of regulation is that outside of such incorporated communities. There is also some criticism of the act since it does not provide for the examination of plumbing inspectors. As soon as the coming examination is over it is probable that another weakness will develop due to the lack of interest in the enforcement of

the act by a few of the local boards. These men receive a fee based the number of plumbers examined and once the examination is over they receive no further remuneration of any kind. Obviously, it will be difficult, and in some counties impossible, to find men willing to serve on the board under these conditions. If the law is to be made effective it must be placed in the hands of a full-time state plumbing inspector and provision made for financing his work. He should be enabled to investigate all charges of incompetency and to hold frequent examinations in each county of the state. It appears that there is ample work for one chief plumbing inspector and two or three deputies with proper clerical force. Total fees received under the act will scarcely amount to more than \$7,000 per year; this sum is entirely inadequate to handle the act properly.

STAFF AND APPROPRIATION, 1916-1918.

Due to a slight increase in the biennial appropriation from \$30,000 to \$45,000, it was possible to make some enlargement of the staff and particularly to establish a branch office and laboratory in Los Angeles. The staff on organization in 1915 started off with C. G. Gillespie, director; Ralph Hilscher, assistant engineer; Frank Bachmann, chemist and bacteriologist; Joseph Doman, sanitary engineering assistant; Miss A. M. Tridel, clerk, and Cornelius Herb, laboratory helper. Since that time the following changes have been made in the staff:

Mr. Ralph Hilscher was transferred to take charge of the branch office in Los Angeles; his place was filled by Mr. Clyde F. Smith, assistant engineer, who has had long experience in sanitary engineering work with the New York State Board of Health, Massachusetts State Board of Health and the Chicago Sanitary District. Mr. Doman left the bureau in September, 1917, to join the Army. His place has been filled by Mr. Ray F. Goudey, engineering assistant; Mr. Goudey is a graduate of Massachusetts Institute of Technology in 1917. Mr. Harry N. Jenks, graduate in civil engineering, University of California, in 1916, was employed for a few months as engineering assistant, which position he left for work in the Far East. Numerous changes have been made in the laboratory and stenographic forces.

SUMMARY OF WORK PERFORMED.

Sewage Disposal.

Permits granted	35
Reports to communities	42
Inspections	267
Reinspections	53
Plans reviewed	56
Tests of sewage treatment plants	3
Stream pollution surveys	4

Water Supplies.

Permits granted	42
Reports to communities	52
Inspections	215
Reinspections	36
Plans reviewed	5

Swimming Pools.

Temporary permits granted	209
Inspections	8
Inspections	2
Inspections reviewed	9

Special Investigations.

Sanitary surveys	8
Sanitary inspection, Oakland	1
Sanitary inspection, Seal Creek piggery	1
Sanitary nuisance, Long Beach	1
Cholera epidemic, San Pablo Dam	1
Cholera epidemic, Merced Falls	1

Distribution of the above work by communities is as follows:

Arcata	Dinuba	Isleton
Ardenheim	Dixon	Jackson
Ardenoch	Downieville	Jamestown
Ardenia	East Bay Cities	Japanese Camp
Arroyo Grande	El Centro	Keene
Arroyoadero	Eldridge	Kennett
Arroyo	Elk	Kingsburg
Arroyo	Elk Grove	Lakeport
Arroyo	El Monte	Lincoln
Arroyo	El Portal	Linda Vista
Arroyo	Elsinore	Lindsay
Arroyo	Engelmine	Livermore
Arroyo	Escalon	Lompoc
Arroyo	Escondido	Long Beach
Arroyo	Eureka	Los Alamitos
Arroyo	Exeter	Los Angeles
Arroyo	Fairfax	Los Banos
Arroyo	Fallen Leaf Lodge	Los Gatos
Arroyo	Firebaugh	Madera
Arroyo	Folsom	Manor
Arroyo	Fort Bragg	Manteca
Arroyo	Fortuna	March Field
Arroyo	Fowler	Marysville
Arroyo	Fresno	Mayfield
Arroyo	Friant	Mendocino
Arroyo	Fullerton	Menlo Park
Arroyo	Galt	Merced
Arroyo	Glen Alpine Springs	Merced Falls
Arroyo	Glendale	Miramar Beach
Arroyo	Grimes	Modesto
Arroyo	Hanford	Mountain View
Arroyo	Guasti	Napa
Arroyo	Gustine	National City
Arroyo	Hammond	Newman
Arroyo	Hammonton	Newport Beach
Arroyo	Hanford	Niland
Arroyo	Hayward	Oakdale
Arroyo	Hayward Heath	Oakland
Arroyo	Hearlsburg	Oceanside
Arroyo	Hemet	Ontario
Arroyo	Highlands	Orange
Arroyo	Hobart Mills	Oroville
Arroyo	Hollister	Pacific Grove
Arroyo	Holtville	Palmdale
Arroyo	Huntington Lake	Palo Alto
Arroyo	Imperial	Parlier
Arroyo	Irvington	Pasadena

Paso Robles	San Fernando	South San Francisco
Petaluma	San Francisco	Stanford University
Pittsburg	San Gabriel	St. Helena
Pittsburg	Sanger	Stockton
Pittsburg	San Jose	Suisun
Pleasanton	San Luis Obispo	Sunnyvale
Plympton	San Pablo	Sunol
Port Costa	San Pedro	Talmage
Porterville	San Rafael	Tracy
Quincy	Santa Ana	Truckee
Redding	Santa Barbara	Tulare
Redlands	Santa Clara	Turlock
Redondo	Santa Cruz	Ukiah
Redwood City	Santa Maria	Vacaville
Redkey	Santa Monica	Vallejo
Reposa	Santa Paula	Ventura
Rio Vista	Santa Rosa	Visalia
Riverside	Saratoga	Walnut Creek
Rockwell	Sawtelle	Watsonville
Rodeo	Scotia	Wawona
Roseville	Seal Beach	Weed
Rosa	Selma	Whittier
Sacramento	Sierra City	Willits
Salinas	Sisson	Winters
Samoa	Sonoma	Yosemite
San Bernardino	Sonora	Yountville
San Diego	Soquel	Yuba City
San Dimas	South Palo Alto	Yuma, Ariz.

In the laboratories the bureau has analyzed water and sewage for sanitary purposes and made reports thereon, as follows:

Water.

Bacteriological examinations	7,315
Partial chemical examinations.....	7,021
Mineral analyses	34
Sanitary chemical examinations.....	146
Microscopic examinations	117
Special bacteriological examinations.....	15
Bacteriological examination of ice.....	2

Sewage.

Bacteriological examinations	243
Chemical examinations	17

Trade Wastes.

Chemical examinations	17
-----------------------------	----

Special.

Mechanical examinations of filter sand.....	9
Examination of filter alum.....	1
Examinations of sludge.....	2
Bacteriological examinations of swimming pools.....	3
Special examinations	3
Total	14,945

Forty-three communities now have their supplies examined regularly by the laboratories, listed as follows:

Antioch	Fresno	Merced	San Dimas
Azusa	Glendale	Merced Falls	San Jose
Calexico	Grass Valley	National City	Santa Cruz
Calipatria	Hemet	Niland	Santa Paula
Calistoga	Hercules	Ontario	Santa Rosa
Dixon	Kennett	Oroville	Sonora
El Centro	Livermore	Petaluma	Ukiah
Escondido	Lompoc	Pittsburg	Ventura
Eureka	Los Angeles	Redding	Weaverville
Folsom	Los Banos	Richmond	Westwood
Folsom Prison	Menlo Park	Roseville	

About 12,000 letters have been written in the past two years and papers were prepared as follows: "Chlorine Treatment of Water," "Safe Water on Outing Trips," "Some Control Measures for Warm Weather Typhoid Fever in California," "Remarks on Sanitary Swimming Pools" and "Some Observations on Tests for B. Coli."

Two new pamphlets have been issued, entitled: "Contamination of Well Water Supplies" and "Rules and Regulations Governing the Preparation and Submission of Plans and Reports on Sewerage Systems and Sewage Disposal Works, Water Supply and Water Purification Works." A second revised edition has been issued on two former bulletins, as follows: "Sanitation in the Mountains" and "Sewage Disposal for Isolated Residences."

REPORT OF THE BUREAU OF FOODS AND DRUGS.

E. J. LEA, M.S., Director.

The report of the Bureau of Foods and Drugs, herewith submitted, is the sixth biennial report of this bureau and covers the period from July 1, 1916, to June 30, 1918.

The work of this department includes the inspection and examination of foods and drugs, in connection with the enforcement of the California Pure Foods and Drugs Acts; the inspection of cold storage plants and the products contained therein; the sanitary inspection of food producing establishments and the inspection and examination of food and other supplies furnished to state institutions. During the last year, however, the Bureau of Foods and Drugs has co-operated quite extensively with the U. S. Food Administration and the U. S. Bureau of Chemistry, in their work concerning war regulations on foods.

During the biennial period, 3,700 official samples of foods and drugs were collected and analyzed. Of this number, 2,210 samples were adulterated or mislabeled within the meaning of the California pure foods or drugs acts.

Two thousand one hundred and eleven cases were reported to the State Board of Health for action: of this number, 1,327 cases were referred to district attorneys for prosecution. The cases which were not referred for prosecution were either corrected, before the hearing held by the State Board of Health, or they consisted of minor matters which were readily corrected without court action. Of the 1,327 cases referred for prosecution, 730 were found guilty. The remaining 597 cases are accounted for as follows: In many instances several cases were referred against the same dealer, but when they came to court, action was taken on only one case and the others were dismissed. More than 200 cases have not as yet been tried. Comparatively few of the defendants in these cases have been acquitted.

The fines for the biennial period amounted to \$9,363.

The cold storage work involves the inspection of 44 cold storage plants in this state, in order to determine their fitness for the storage of food materials, and also the inspection of the foods which are stored therein. Practically all of the storage plants are in excellent condition and well adapted to the purpose of preserving foods. At frequent intervals various foods are found in cold storage plants which are not suitable for human consumption, but the total amount of such unfit food is relatively small when compared to the amount handled by cold storage plants.

A large amount of time has been devoted to the sanitary inspection of stores, shops and food producing establishments. Many of the summer dairy camps in the mountains have also been inspected. These dairies usually provide the least possible amount of equipment and many of their methods are extremely crude. For instance, several dairies were found which made a practice of milking in small filthy corrals, using open pails, and instead of carrying the milk one hundred feet or more to the separator, it was piped through a three-quarter inch gas pipe. The examination of some of this pipe showed a coating of rotten milk about one-eighth inch in thickness for the entire length

of the pipe. The pipes were never thoroughly cleaned and rarely ever cleaned at all. Many of such dairymen had complained of the difficulty in shipping milk down to the larger cities in a satisfactory condition. After their errors were pointed out, and corrected, they had no further trouble. Many improvements have also been made in the regular dairies in the valleys of the state, as a result of instructions and recommendations of the inspectors of this department.

The system of examination of supplies for state institutions, as provided by the State Board of Control, has continued to give good results in keeping up the quality of food and other supplies delivered to the institutions. Deliveries of material which did not conform to specifications have frequently been rejected after examination and analysis by this bureau. The mere fact that a system of inspection and examination is in effect undoubtedly prevents to a considerable extent, unscrupulous dealers from attempting to supply inferior goods.

The amendment to the Pure Food Act, passed by the legislature at the last session, giving the Bureau of Foods and Drugs authority to seize and quarantine decomposed and unfit food, wherever found has been of wonderful assistance in preventing the sale of much bad material. Before this amendment was passed, it frequently required a number of weeks to obtain judgment against bad goods in order to destroy them, and in the meantime the material was usually sold or disposed of, so that no action could be taken on the goods themselves.

The bureau has co-operated with several commercial associations, women's clubs and educational institutions in giving lectures on the particular features of the food and drug laws which were of especial interest to them.

The California Wholesale Grocers Association, the California Retail Grocers Association and the California Master Bakers Association deserve special mention. These organizations stand for pure, wholesome food products and they are a great source of assistance in enforcing the California pure food laws.

A number of newspapers in the state assist the work of this bureau in publishing articles concerning violations of the food and drug laws. Such publicity is of great educational value. It aids honest dealers and some careless ones, by calling their attention to certain violations they may be committing themselves. The wilful violators are frequently checked by the publicity and the information is of value to the general public, as it attracts attention to many articles which are either adulterated or mislabeled, thereby enabling the consumer to be more discriminating.

The police and justice courts of the state which have handled the food and drug cases of this department, have, generally speaking, given excellent assistance. Occasionally it is impossible to obtain a conviction, owing to political influence, but such cases are comparatively rare.

Gradual improvement is still being made in the labeling of food and drug products. The quality of canned goods and manufactured foods appear also to be improving. The majority of wholesale and retail dealers seem anxious to have their stocks entirely free from criticism and usually it is only necessary to mention defects in order to obtain desired results. At the same time, there are many food and drug manufacturers and dealers who persist in their endeavors to evade the food and drug laws.

Our force of seven inspectors is not large enough to handle the important problems of this department. There are many times when we could use a force four or five times as large. This is especially true during the season for the canning of tomato products and the drying of fruits.

OFFICIAL SAMPLES—FOODS AND FOOD PRODUCTS.

For the Fiscal Years Ending June 30, 1917, and June 30, 1918.

1917.		<i>Beverages.</i>		1918.	
Legal	33.	Illegal	21.	Total	54
		|		Legal	6.
				Illegal	22.
				Total	28

The above beverages consisted of cider, ginger ale, fruit juices, orangeade, iron beer and a variety of soda waters. The principal violations included the use of artificial flavors and colors in the soda waters; capsicum in the ginger ale, without the fact being declared in the label; and the manufacture of imitation cider, fruit juices and orangeade.

The sale of imitation orangeade as a genuine article has been very extensive during the past two years; it has been dispensed from large inverted bottles with cooler underneath. At this writing, the labels have been corrected to read "Imitation Orangeade."

1917.		<i>Bouillon Cubes.</i>		1918.	
None.		|		Legal	1.
				Total	1

1917.		<i>Bread.</i>		1918.	
Legal	10.	Illegal	25.	Total	35
		|		Legal	3.
				Illegal	6.
				Total	9

1917.		<i>Bread Improver.</i>		1918.	
Legal, none.	1.	Total	1	None.	

Fourteen samples of illegal gluten bread were deficient in gluten; the remaining illegal samples consisted of malted milk bread, butter bread, rice bread and potato products, all of which contained substitute products.

The package containing the Bread Improver bore false statements regarding its merits.

1917.		<i>Butter.</i>		1918.	
Legal	5.	Illegal	4.	Total	9
		|		Legal	6.
				Illegal	1.
				Total	7

The illegal samples were rancid, moldy and unfit for human consumption.

1917.		<i>Butter Fat.</i>		1918.	
None.		|		Legal, none.	1.
				Illegal	1.
				Total	1

This sample consisted of beef fat.

1917.		<i>Cereals.</i>		1918.	
Legal	1.	Illegal, none.	Total	1	
		|		Legal, none.	1.
				Illegal	1.
				Total	1

The illegal sample consisted of decomposed cornmeal.

1917.		<i>Cheese.</i>		1918.	
Legal	1.	Illegal, none.	Total	1	
		|		Legal	3.
				Illegal	3.
				Total	6

One illegal sample was mislabeled; two consisted of rancid and decomposed Jack Cheese.

1917.		<i>Chocolate and Cocoa.</i>		1918.	
Legal	5.	Illegal	8.	Total	13
		|		Legal	2.
				Illegal	15.
				Total	17

The illegal samples of chocolate were deficient in fat; some contained excessive cocoa shells; some contained sugar without indicating this fact on the label; others consisted of cocoa, but were labeled "chocolate."

1917.		<i>Cocoa Substitute.</i>		1918.	
Legal	1.	Illegal, none.	Total	1	
		|		None.	

1917.		<i>Cocoanut.</i>		1918.	
Legal	1.	Illegal, none.	Total	1	
		|		None.	

1917.		<i>Coffee.</i>		1918.	
Legal	27.	Total	32	Legal	1.
		|		Illegal	8.
				Total	9

One violation found in coffee consisted in substituting chicory in part. Samples contained roasted cereal and dried fruit pulp.

1917. *Coffee Mixture.* 1918.
 Legal--- 1. Illegal, none. Total--- 1 | Legal--- 1. Illegal--- 1. Total--- 2
 The illegal sample contained no coffee.

1917. *Condiments.* 1918.
 Legal---78. Illegal---69. Total---147 | Legal---44. Illegal---87. Total---131

The illegal samples consisted of prepared mustard, mustard pickles, sour pickles, relishes, chili sauce, miscellaneous sauces, and tomato catsup. The illegal mustard samples were deficient in mustard and artificially colored with turmeric, whereby inferiority was concealed; the other illegal condiments consisted wholly or in part of decomposed vegetable substance.

1917. *Confectionery.* 1918.
 Legal---27. Illegal--- 6. Total---33 | Legal--- 8. Illegal---23. Total---31

One sample labeled and sold as "licorice" consisted of flour, molasses and artificial color with less than 1 per cent of licorice; three samples of maple sugar were adulterated with brown sugar and imitation maple flavor; the other violations consisted of the use of artificial flavor and artificial color in imitation of natural products.

1917. *Crackers.* 1918.
 Legal--- 1. Illegal, none. Total--- 1 | None.

1917. *Cream.* 1918.
 Legal--- 1. Illegal--- 2. Total--- 3 | Legal---20. Illegal--- 5. Total---25

Three samples were deficient in fat; two samples contained excessive sediment, dirt, etc., and two samples were both deficient in fat and contained excessive sediment.

1917. *Cream of Tartar.* 1918.
 Legal--- 2. Illegal, none. Total--- 2 | None.

1917. *Eggs.* 1918.
 Legal---12. Illegal---105. Total---117 | Legal--- 8. Illegal---44. Total---52

The illegal samples of eggs were stale, putrid, filthy and decomposed.

1917. *Egg Albumin.* 1918.
 None. | Legal, none. Illegal--- 1. Total--- 1

This sample was decomposed and unfit for human consumption.

1917. *Egg Whites.* 1918.
 None. | Legal--- 1. Illegal--- 3. Total 4

The illegal samples were decomposed and filthy.

1917. *Egg, Dried.* 1918.
 None. | Legal---11. Illegal--- 1. Total---12

The illegal sample was decomposed and unfit for human consumption.

1917. *Egg Substitutes.* 1918.
 Legal, none. Illegal--- 7. Total--- 7 | Legal--- 8. Illegal--- 23. Total---31

These egg substitutes included fourteen varieties of preparations composed largely of starch; the majority contained a small percentage of dried skimmed milk and artificial color; a few contained a very small percentage of dried egg or dried egg yolk. None of these materials has the food value nor the cooking value of eggs; they are sold at prices ranging from four to seven times the actual value of the material. The labels on the packages usually contain exaggerated statements, such as: "The contents of this package (four oz.) is equal to 36 eggs." The directions usually indicate that a teaspoonful or part of a teaspoonful is equivalent to an egg in ordinary recipes.

1917. *Extracts.* 1918.
 Legal---30. Illegal---43. Total---73 | Legal---28. Illegal---24. Total---52

The illegal samples consisted of ginger, lemon, orange, peach, peppermint, raspberry, strawberry and vanilla; these samples were either sub-standard or consisted of imitation products.

1917. *Feed.* 1918.
 Legal--- 1. Illegal--- 1. Total--- 2 | Legal--- 8. Illegal, none. Total--- 8

The illegal sample consisted of rice middlings containing excessive mineral matter.

1917. *Fish and Oysters, Canned.* 1918.
 Legal...34. Illegal...30. Total...64 | Legal...24. Illegal...49. Total...73
 The fish samples included canned cod, crab, herring, salmon, oysters, sardines, tuna and fish sausage. The illegal samples were decomposed and unfit for human consumption.

1917. *Flour.* 1918.
 Legal... 7. Illegal... 4. Total...11 | Legal... 2. Illegal... 2. Total... 4
 The illegal samples consisted of sub-standard gluten and graham flours.

1917. *Fruits.* 1918.
 Legal... 4. Illegal... 9. Total...13 | Legal...10. Illegal...10. Total...20
 The fruit samples consisted of currants, figs, raspberries, strawberries, oranges, apples, peaches, pears, prunes and raisins. The illegal samples, with the exception of the oranges, consisted of moldy, fermented or decomposed fruit; the oranges were mislabeled as to variety, inferior stock being sold as a better grade.

1917. *Gelatine.* 1918.
 Legal... 7. Illegal... 9. Total...16 | Legal... 1. Illegal...18. Total...19
 The illegal samples consisted of gelatine containing excessive zinc, arsenic, copper or glue.

1917. *Gum Scrap.* 1918.
 Legal, none. Illegal... 1. Total... 1 | None.
 This sample was filthy and unfit for human consumption.

1917. *Honey.* 1918.
 Legal... 2. Illegal, none. Total... 2 | Legal... 6. Illegal... 3. Total... 9
 The illegal samples contained sugar.

1917. *Ice Cream.* 1918.
 Legal... 34. Illegal...10. Total...44 | Legal...28. Illegal... 8. Total...36
 The illegal samples were made from decomposed products; deficient in fat; or artificially colored and flavored in imitation of natural products.

1917. *Icing.* 1918.
 Legal... 2. Illegal, none. Total... 2 | None.

1917. *Jellies and Jams.* 1918.
 Legal... 9. Illegal... 8. Total...17 | Legal...12. Illegal... 8. Total...20
 Some of the illegal samples consisted of decomposed material and some consisted of artificially colored substitute products. In most cases apple stock was substituted for more expensive fruits. A few of the samples consisted of so-called bakers' jelly, composed of cornstarch base with artificial flavor and color, added citric acid for flavor and phosphoric acid as a coagulator.

1917. *Jelly Powder.* 1918.
 Legal... 1. Illegal, none. Total... 1 | None.

1917. *Lard and Lard Compounds.* 1918.
 Legal... 1. Illegal, none. Total... 1 | Legal... 4. Illegal, none. Total... 4

1917. *Liquors.* 1918.
 Legal...44. Illegal...256. Total...300 | Legal...20. Illegal...287. Total...326
 The adulterated liquors consisted of absinthe, Amer Picon, beer, brandy, cordials, Fernet-Branca, Gilka-Kummel, gins, Pisco, rum, vermouth, whiskey and wine. Practically all of these violations consisted in substitutions of cheaper and inferior liquor for genuine and well-known brands.

1917. *Meats.* 1918.
 Legal...48. Illegal...63. Total...111 | Legal...30. Illegal...61. Total...91
 The meat samples consisted of bologna sausage, pork sausage, chopped meat (Hamburger) sausage, frankfurters, ham compound, dried beef, corned beef and fresh beef. The bologna, frankfurter and sausage samples contained cereals, which were not properly declared on the label or by a suitable sign. The chopped meats contained sulfite, a prohibited preservative. Some of the frankfurters contained artificial color. The dried beef samples were in glass jars with live investigation of this class of material showed that the jars on the retailers' shelves for a period varying from one month to more

than twelve months, and is usually not guaranteed by the manufacturer for more than three months; many of the samples contained excessive bacteria and a number were moldy, and in some cases the meat had a decided taint. After a general discussion of this subject, the State Board of Health passed a resolution disapproving of the packing of sliced dried beef in glass containers.

The fresh meat sample was from a tubercular cow. In this case an attempt had been made to remove all of the tubercular glands; however, considerable evidence of their existence still remained. The dealer who was responsible for slaughtering and attempting to trim this tubercular cow was convicted by a jury and fined \$500.

1917.	<i>Milk.</i>	1918.
Legal...49. Illegal...107. Total...156	| Legal...80. Illegal...43. Total...143	

The illegal samples consisted largely of dirty milk, high in bacteria, some samples were deficient in fat, and a very few had been watered.

1917.	<i>Milk, Condensed.</i>	1918.
Legal...13. Illegal...25. Total...38	| Legal... 6. Illegal... 3. Total... 9	

A large proportion of the illegal condensed milk contained excessive bacteria and consisted of Tulip brand condensed skimmed milk and Velvet brand condensed skimmed milk; the sale of these two brands of milk was stopped in this state.

1917.	<i>Milk, Malted.</i>	1918.
Legal, none. Illegal... 6. Total... 6	|	None.

The illegal samples consisted of brands which had been substituted for other brands.

1917.	<i>Molasses.</i>	1918.
Legal... 1. Illegal... 3. Total... 4	| Legal...16. Illegal...25. Total... 41	

The illegal samples of molasses consisted of low-grade molasses, containing excessive mineral matter and impurities.

1917.	<i>Nuts and Nut Meats.</i>	1918.
Legal... 1. Illegal...13. Total...14	| Legal... 2. Illegal...12. Total...14	

The illegal samples consisted of rancid, wormy, moldy and decomposed material.

1917.	<i>Nut Paste.</i>	1918.
None.	| Legal .. 3. Illegal, none. Total... 3	

1917.	<i>Oleomargarine.</i>	1918.
Legal... 1. Illegal... 1. Total... 2	| Legal... 1. Illegal... 1. Total... 2	

The illegal samples were rancid and decomposed.

1917.	<i>Oils.</i>	1918.
Legal... 7. Illegal... 5. Total...12	| Legal... 6. Illegal... 4. Total...10	

Two illegal samples consisted of cottonseed oil substituted for olive oil; the other illegal samples were decomposed, rancid or contained dirty material.

1917.	<i>Pastes, Alimentary.</i>	1918.
Legal...13. Illegal... 6. Total...19	| Legal... 7. Illegal...20. Total...27	

Most of the illegal alimentary pastes consisted of egg noodles which were deficient in egg; some contained practically no egg at all; the other violations consisted in the sale of wormy noodles, macaroni, vermicelli, etc.

1917.	<i>Pastry and Pastry Filler.</i>	1918.
Legal... 7. Illegal...11. Total...18	| Legal... 6. Illegal...11. Total...17	

Ten of the illegal samples consisted of macaroons, in which either flour or cornstarch had been substituted for macaroons; and one sample was pineapple cake, which was dirty and decomposed, and in which apple stock had been largely substituted for pineapple; the remaining illegal samples consisted of cream rolls containing no cream, orange cake, orange tarts and orange sticks, artificially colored and flavored in imitation of orange, and pies and shortcake made from dirty and filthy material.

1917.	<i>Pork and Beans.</i>	1918.
Legal... 1. Illegal... 3. Total... 4	|	None.

The illegal samples consisted principally of soya beans, with a very small amount of pork.

1917.	<i>Poultry.</i>	1918.
None.	| Legal, none. Illegal... 2. Total... 2	

These illegal samples consisted of decomposed chicken.

1917.	Results.		1918.
Legal.... 2. Illegal.... 0. Total.... 2.			None.
1917.	Soda.		1918.
Legal.... 1. Illegal.... 0. Total.... 1.	Legal.... 4. Illegal.... 2.	Total.... 6.	
The two legal samples did not conform to the standard of purity.			
1917.	Soda, Bicarbonate.		1918.
Legal, none. Illegal.... 1. Total.... 1.			None.
This sample does not conform to standard.			
1917.	Soap, Canned.		1918.
Legal, none. Illegal.... 1. Total.... 1.			None.
This sample was filthy and decomposed.			
1917.	Spices.		1918.
Legal.... 31. Illegal.... 9. Total.... 40.	Legal.... 57. Illegal.... 19.	Total.... 76.	
The illegal samples consisted of decomposed and moldy allspice; mace composed almost entirely of Bontiny mass; fruit cake spice composed of exhausted spices and spice refuse; mustard, three containing 50 per cent cereal, and others colored with turmeric; ground black pepper containing decomposed vegetable and animal matter, and poultry condiments containing bran and other foreign substances.			
1917.	Sugar, Maple.		1918.
None.	Legal.... 3. Illegal.... 9.	Total.... 12.	
The illegal samples consisted of brown sugar containing imitation maple flavor.			
1917.	Syrups, Fountain.		1918.
Legal.... 11. Illegal.... 28. Total.... 39.	Legal.... 6. Illegal.... 13.	Total.... 19.	
The illegal samples consisted of syrups with artificial flavor and color in imitation of natural products.			
1917.	Syrups, Table.		1918.
Legal.... 3. Illegal.... 13. Total.... 16.	Legal.... 26. Illegal.... 37.	Total.... 63.	
Nineteen of the illegal syrups consisted largely of cane sugar, or cane sugar and glucose, whereas they were labeled and sold as pure maple syrup; the other illegal syrups were labeled to indicate that they contained more maple syrup than was actually present.			
1917.	Tea.		1918.
Legal.... 1. Illegal, none. Total.... 1.			None.
1917.	Vegetables.		1918.
Legal.... 68. Illegal.... 26. Total.... 94.	Legal.... 92. Illegal.... 110.	Total.... 202.	
The illegal vegetable samples consisted of dried and canned beans, sauerkraut, spinach, canned peas, tomatoes and tomato products. The canned peas contained a coloring matter (copper sulfate) which is not permitted in foods; the other illegal samples consisted wholly or in part of filthy, decomposed vegetable substance. By far the majority of the samples under this head were tomato puree and tomato paste; they were largely collected toward the end of the canning season, and were made from moldy and decomposed stock.			
1917.	Vegetable Compounds.		1918.
None.	Legal, none. Illegal.... 7.	Total.... 7.	
These samples consisted of filthy and decomposed animal and vegetable substance.			
1917.	Vinegar.		1918.
Legal.... 34. Illegal.... 9. Total.... 43.	Legal.... 63. Illegal.... 18.	Total.... 81.	
The illegal samples contained added water or consisted of compounds made from acetic acid as a base and other materials used to imitate genuine vinegars.			
1917.	Waters, Mineral.		1918.
Legal.... 1. Illegal.... 1. Total.... 2.	Legal.... 15. Illegal.... 1.	Total.... 16.	
The labels of the illegal samples contained false and fraudulent statements as to their therapeutic properties.			

UNOFFICIAL SAMPLES—FOODS AND FOOD PRODUCTS.
For the Fiscal Years Ending June 30, 1917, and June 30, 1918.

1917.				<i>Beverages.</i>				1918.				
Legal	7.	Illegal	3.	Total	10	|	Legal	1.	Illegal, none.	Total	1	
1917.				<i>Bread.</i>				1918.				
Legal, none.		Illegal	2.	Total	2	|	Legal	14.	Illegal, none.	Total	14	
1917.				<i>Butter.</i>				1918.				
Legal, none.		Illegal	1.	Total	1	|	Legal	1.	Illegal, none.	Total	1	
1917.				<i>Cheese.</i>				1918.				
Legal	1.	Illegal	1.	Total	2	|	Legal	3.	Illegal, none.	Total	3	
1917.				<i>Chocolate.</i>				1918.				
Legal	1.	Illegal	16.	Total	17	|	None.					
1917.				<i>Cocoanut.</i>				1918.				
Legal	1.	Illegal	3.	Total	4	|	Legal, none.		Illegal	2.	Total	2
1917.				<i>Coffee.</i>				1918.				
Legal	1.	Illegal, none.		Total	1	|	None.					
1917.				<i>Condiments.</i>				1918.				
Legal	5.	Illegal	16.	Total	21	|	Legal	25.	Illegal	28.	Total	53
1917.				<i>Confectionery.</i>				1918.				
Legal	2.	Illegal, none.		Total	2	|	Legal	4.	Illegal	2.	Total	6
1917.				<i>Cream.</i>				1918.				
Legal	4.	Illegal, none.		Total	4	|	Legal	1.	Illegal, none.	Total	1	
1917.				<i>Eggs.</i>				1918.				
Legal	5.	Illegal	1.	Total	5	|	None.					
1917.				<i>Egg Whites and Dried Egg.</i>				1918.				
Legal	1.	Illegal	1.	Total	2	|	Legal	2.	Illegal	4.	Total	6
1917.				<i>Egg Substitutes.</i>				1918.				
Legal, none.		Illegal	1.	Total	1	|	Legal	8.	Illegal	10.	Total	18
1917.				<i>Extracts.</i>				1918.				
Legal	2.	Illegal	2.	Total	4	|	Legal	3.	Illegal	1.	Total	4
1917.				<i>Fish, Canned.</i>				1918.				
Legal	11.	Illegal	15.	Total	26.	|	Legal	17.	Illegal	38.	Total	55
1917.				<i>Fish, Fresh.</i>				1918.				
Legal	1.	Illegal	1.	Total	1	|	None.					
1917.				<i>Flour.</i>				1918.				
Legal	17.	Illegal, none.		Total	17	|	Legal	14.	Illegal	4.	Total	18
1917.				<i>Fruit.</i>				1918.				
Legal	12.	Illegal	6.	Total	18	|	Legal	8.	Illegal	3.	Total	11
1917.				<i>Gelatine.</i>				1918.				
Legal	8.	Illegal	12.	Total	20	|	Legal	6.	Illegal	10.	Total	16
1917.				<i>Ice Cream, Ice Cream Filler.</i>				1918.				
Legal	7.	Illegal	1.	Total	8	|	Legal	2.	Illegal, none.	Total	2	
1917.				<i>Iceine.</i>				1918.				
Legal	2.	Illegal, none.		Total	2	|	None.					
1917.				<i>Jellies and Jams.</i>				1918.				
Legal	10.	Illegal	6.	Total	16	|	Legal	3.	Illegal	1.	Total	4

REPORT OF THE STATE BOARD OF HEALTH.

1917.				<i>Lard and Lard Compounds.</i>				1918.			
Legal	1.	Illegal, none.	Total	1	|	Legal	1.	Illegal	0.	Total	1
1917.				<i>Liquors.</i>				1918.			
Legal	29.	Illegal	Total	33	|	Legal	66.	Illegal	3.	Total	71
1917.				<i>Meats.</i>				1918.			
Legal	2.	Illegal	Total	14	|	Legal	5.	Illegal	9.	Total	14
1917.				<i>Milk.</i>				1918.			
Legal	4.	Illegal, none.	Total	4	|	Legal	19.	Illegal	1.	Total	20
1917.				<i>Milk, Condensed.</i>				1918.			
Legal	14.	Illegal	Total	53	|	Legal	3.	Illegal	3.	Total	6
1917.				<i>Milk, Malted.</i>				1918.			
Legal	3.	Illegal	Total	4	|					None.	
1917.				<i>Nuts.</i>				1918.			
Legal	1.	Illegal	Total	22	|	Legal	11.	Illegal	16.	Total	27
1917.				<i>Nut Compounds.</i>				1918.			
Legal	1.	Illegal, none.	Total	1	|	Legal	1.	Illegal	1.	Total	2
1917.				<i>Oils, Edible.</i>				1918.			
Legal	4.	Illegal	Total	5	|	Legal	7.	Illegal, none.		Total	7
1917.				<i>Olives.</i>				1918.			
Legal	2.	Illegal, none.	Total	2	|	Legal	3.	Illegal, none.		Total	3
1917.				<i>Pastes, Alimentary.</i>				1918.			
Legal	6.	Illegal, none.	Total	6	|					None.	
1917.				<i>Pastry.</i>				1918.			
None.					|	Legal	1.	Illegal	2.	Total	3
1917.				<i>Rice.</i>				1918.			
Legal	4.	Illegal, none.	Total	4	|					None.	
1917.				<i>Salt.</i>				1918.			
None.					|	Legal	2.	Illegal	1.	Total	3
1917.				<i>Spice.</i>				1918.			
Legal	6.	Illegal	Total	8	|	Legal	10.	Illegal	2.	Total	12
1917.				<i>Sugar.</i>				1918.			
Legal	1.	Illegal, none.	Total	1	|	Legal	2.	Illegal, none.		Total	2
1917.				<i>Sugar, Maple.</i>				1918.			
None.					|	Legal	3.	Illegal, none.		Total	3
1917.				<i>Syrup, Fountain.</i>				1918.			
None.					|	Legal	1.	Illegal	2.	Total	3
1917.				<i>Syrup, Table.</i>				1918.			
Legal	2.	Illegal, none.	Total	2	|	Legal	5.	Illegal	1.	Total	6
1917.				<i>Vegetables.</i>				1918.			
Legal	19.	Illegal	Total	40	|	Legal	64.	Illegal	124.	Total	188
1917.				<i>Vegetable Compounds.</i>				1918.			
Legal, none.		Illegal	Total	2	|	Legal	2.	Illegal	2.	Total	4
1917.				<i>Vinegar.</i>				1918.			
Legal	3.	Illegal	Total	7	|	Legal	1.	Illegal	2.	Total	3
1917.				<i>Veg-Paraf.</i>				1918.			
Legal	1.	Illegal, none.	Total	1	|					None.	

The majority of the unofficial food samples consisted of tomato products, substitutes, canned fish, gelatine, nuts and nut meats, and condiments. In general, the comments applied to the official samples of these materials apply to the unofficial

UNOFFICIAL SAMPLES—MISCELLANEOUS PRODUCTS.

For the Fiscal Years Ending June 30, 1917, and June 30, 1918.

1917.	<i>Apricot Pits.</i>			1918.
None.	|	Legal... 1.	Illegal, none.	Total... 1
1917.	<i>Colors.</i>			1918.
Legal... 1.	Illegal... 1.	Total... 2	|	none
1917.	<i>Dextri-Maltose.</i>			1918.
None.	|	Legal... 1.	Illegal, none.	Total... 1
1917.	<i>Oil, Lubricating.</i>			1918.
None.	|	Legal... 1.	Illegal, none.	Total... 1
1917.	<i>Preservatives.</i>			1918.
Legal... 2.	Illegal, none.	Total... 2	| Legal... 1. Illegal... 1.	Total... 2
1917.	<i>Tobacco—Cigarettes.</i>			1918.
Legal... 2.	Illegal, none.	Total... 2	|	None.
1917.	<i>Waste.</i>			1918.
None.	|	Legal... 1.	Illegal, none.	Total... 1
1917.	<i>Water, Potable.</i>			1918.
Legal... 1.	Illegal, none.	Total... 1	| Legal... 12.	Illegal, none. Total... 12
1917.	<i>Wool.</i>			1918.
Legal... 1.	Illegal, none.	Total... 1	|	None.

COLD STORAGE SAMPLES.

For the Fiscal Years Ending June 30, 1917, and June 30, 1918.

1917.	<i>Butter.</i>			1918.
Legal... 4.	Illegal, none.	Total... 4	|	None.
1917.	<i>Cheese.</i>			1918.
Legal... 2.	Illegal, none.	Total... 2	| Legal... 1. Illegal, none.	Total... 1
1917.	<i>Condiments.</i>			1918.
Legal... 1.	Illegal, none.	Total... 1	|	None.
1917.	<i>Eggs.</i>			1918.
Legal, none.	Illegal... 38.	Total... 38	| Legal... 1. Illegal... 1.	Total... 2
1917.	<i>Fish.</i>			1918.
Legal... 5.	Illegal... 4.	Total... 10	| Legal, none. Illegal... 1.	Total... 2
1917.	<i>Flour.</i>			1918.
Legal... 3.	Illegal, none.	Total... 3	|	None.
1917.	<i>Fruit.</i>			1918.
Legal... 7.	Illegal, none.	Total... 7	| Legal... 1. Illegal, none.	Total... 1
1917.	<i>Meat.</i>			1918.
Legal... 1.	Illegal... 6.	Total... 7	|	None.
1917.	<i>Milk.</i>			1918.
Legal... 1.	Illegal... 1.	Total... 2	|	None.
1917.	<i>Nuts.</i>			1918.
Legal, none.	Illegal... 4.	Total... 4	| Legal... 14.	Illegal, none. Total... 14
1917.	<i>Peppers.</i>			1918.
None.	|	Legal... 1.	Illegal, none.	Total... 1
1917.	<i>Poultry.</i>			1918.
Legal... 1.	Illegal... 4.	Total... 5	|	None.
1917.	<i>Vegetables.</i>			1918.
Legal, none.	Illegal... 1.	Total... 1	|	None.

1917.	<i>Digitalis, Tr.</i>	1918.
Legal---17. Illegal, none. Total---17 |		None.
1917.	<i>Flaxseed Meal.</i>	1918.
Legal---1. Illegal, none. Total---1 |		None.
1917.	<i>Gins.</i>	1918.
Legal---1. Illegal---3. Total---4 |		None.
The labels of the illegal samples contained false statements as to the therapeutic properties of these gins.		
1917.	<i>Ginger Compounds.</i>	1918.
Legal---2. Illegal---1. Total---3 |		None.
The statement on the label of the illegal sample was false and misleading as to therapeutic properties.		
1917.	<i>Grippe and Cold Cure.</i>	1918.
None. | Legal, none. Illegal---1. Total---1		
The label of this sample contained fraudulent and exaggerated statements.		
1917.	<i>Hair Tonics.</i>	1918.
Legal, none. Illegal---3. Total---3 | Legal, none. Illegal---10. Total---10		
The labels of the illegal samples contained false statements as to the merits of the articles.		
1917.	<i>Headache Remedies.</i>	1918.
None. | Legal, none. Illegal---1. Total---1		
This article contained habit-forming drugs which were not declared on the label.		
1917.	<i>Hyoscyamus, Tr.</i>	1918.
Legal---9. Illegal, none. Total---9 |		None.
1917.	<i>Iodine, Tr.</i>	1918.
Legal---26. Illegal---8. Total---34 | Legal---11. Illegal---8. Total---19		
The illegal samples of iodine were below standard.		
1917.	<i>Iron, Tr.</i>	1918.
Legal, none. Illegal---1. Total---1 |		None.
The illegal sample was materially deficient in strength.		
1917.	<i>Kidney Remedy.</i>	1918.
Legal, none. Illegal---1. Total---1 |		None.
This remedy did not possess the therapeutic properties claimed on the label.		
1917.	<i>Liniment.</i>	1918.
Legal, none. Illegal---1. Total---1 |		None.
The claims on the label of this liniment were both false and fraudulent.		
1917.	<i>Lysol.</i>	1918.
Legal---2. Illegal, none. Total---2 |		None.
1917.	<i>Magnesia, Citrate.</i>	1918.
Legal---2. Illegal---2. Total---4 | Legal---1. Illegal, none. Total---1		
The illegal samples were materially below the U. S. P. standard.		
1917.	<i>Miscellaneous.</i>	1918.
Legal, none. Illegal---4. Total---4 | Legal---1. Illegal---3. Total---4		
1917.	<i>Nitre, Sweet Spirits.</i>	1918.
Legal---1. Illegal---1. Total---2 | Legal---6. Illegal---2. Total---8		
The illegal samples were below standard.		
1917.	<i>Nux Vomica, Tr.</i>	1918.
Legal---1. Illegal, none. Total---1 |		None.

1917	Oils.			1918
Legal 1	Illegal 18	Total 19		Same
Eight of the illegal samples were sweet oil, containing cottonseed oil, two so-called sandalwood oils consisted principally of substitute materials; three samples of oil of bergamot were imitation products; three were oils for external use, the labels of which contained fraudulent claims as to therapeutic properties; one sample of castor oil contained saccharin, and one sweet almond oil was an imitation product.				
1917	Ointment.			1918
None		Legal, none.	Illegal 1.	Total 1
This was a sample of blue ointment which did not conform to U. S. P. standard.				
1917	Paregoric.			1918
None.		Legal 1.	Illegal 1.	Total 2
The illegal sample did not conform to standard.				
1917.	Peppermint Compounds.			1918.
Legal 4.	Illegal, none.	Total 4	Legal 1.	Illegal 1. Total 2
The illegal sample was deficient in peppermint oil.				
1917.	Petrolive.			1918.
None		Legal 1.	Illegal, none.	Total 1
1917.	Phenacetin.			1918.
Legal 1.	Illegal, none.	Total 1		None.
1917.	Pills.			1918.
Legal 1.	Illegal, none.	Total 1		None.
1917	Port Wine, Tonic.			1918.
Legal, none.	Illegal 3.	Total 3		None.
The illegal samples contained alcohol not declared on the labels; and false statements were made on the labels as to the therapeutic properties of the wines.				
1917	Quinine.			1918.
Legal 1	Illegal, none.	Total 1		None.
1917	Rheumatism Remedies.			1918.
Legal, none.	Illegal 1.	Total 1	Legal 1.	Illegal 1. Total 2
The two illegal samples bore labels containing false and fraudulent statements.				
1917	Saccharine.			1918.
None		Legal, none.	Illegal 1.	Total 1
This sample of saccharine was below standard in strength and purity, and was mislabeled in that it was sold under the name of another article.				
1917.	Salve.			1918.
Legal, none	Illegal 1.	Total 1		None.
The label of this sample contained the statement: "This drug will heal anything," but as a matter of fact the salve contained no therapeutic properties whatever.				
1917.	Srophanthus, Tr. U. S. P.			1918.
Legal 3	Illegal, none.	Total 3		None
1917	Tooth Pastes and Remedies - Pyorrhea Remedies.			1918.
Legal 1	Illegal 1	Total 2	Legal, none.	Illegal 1. Total 1
The two illegal samples were so-called pyorrhea remedies, the labels containing false claims as to their merits.				
1917	Troscal Tablets.			1918.
Legal 1	Illegal, none	Total 1		None
1917	Vesical Tablets.			1918.
Legal, none	Illegal 2	Total 2	Legal, none.	Illegal 2. Total 2
The two illegal samples consisted principally of starch and milk sugar.				

1917.	<i>Waters, Mineral.</i>	1918.
Legal--- 1. Illegal--- 4. Total--- 5 |		None.
The labels of the illegal samples contained false statements as to their therapeutic properties.		

1917.	<i>Waters, Toilet.</i>	1918.
None.	| Legal--- 1. Illegal, none.	Total--- 1
1917.	<i>Witch Hazel.</i>	1918.
Legal--- 2. Illegal, none. Total--- 2 |	Legal--- 1. Illegal, none.	Total--- 1

UNOFFICIAL SAMPLES—DRUGS.

For the Fiscal Years Ending June 30, 1917, and June 30, 1918.

<i>Acid and Acid Tablets.</i>			1918.
Legal, none. Illegal--- 2. Total--- 2 |			None.
1917.	<i>Bay Rum.</i>	1918.	
None.	| Legal--- 1. Illegal, none.	Total--- 1	
1917.	<i>Catarrh Cure.</i>	1918.	
None.	| Legal, none. Illegal -- 1.	Total--- 1	
1917.	<i>Court Plaster.</i>	1918.	
None.	| Legal, none. Illegal--- 1.	Total--- 1	
1917.	<i>Cubeb Berries, Po.</i>	1918.	
None.	| Legal, none. Illegal--- 1.	Total--- 1	
1917.	<i>Gin.</i>	1918.	
Legal, none. Illegal--- 1. Total--- 1 |			None.
1917.	<i>Hair Tonic.</i>	1918.	
None.	| Legal, none. Illegal--- 2.	Total--- 2	
1917.	<i>Iodine, Tr.</i>	1918.	
None.	| Legal--- 2. Illegal, none.	Total--- 2	
1917.	<i>Miscellaneous.</i>	1918.	
Legal, none. Illegal--- 2. Total--- 2 |	Legal--- 1. Illegal, none.	Total--- 1	
1917.	<i>Saccharine.</i>	1918.	
None.	| Legal--- 1. Illegal, none.	Total--- 1	
1917.	<i>Veronal Tablets.</i>	1918.	
Legal--- 5. Illegal, none. Total--- 5 |			None.
1917.	<i>Waters, Mineral.</i>	1918.	
Legal--- 3. Illegal--- 1. Total--- 4 |			None.

The comments applying to the official samples of these materials also apply to the unofficial samples.

STATE INSTITUTION SAMPLES—FOODS AND OTHER SUPPLIES.

For the Fiscal Years Ending June 30, 1917, and June 30, 1918.

The Bureau of Foods and Drugs co-operates with the State Purchasing Department by examining the contract samples of foods and other materials, which are to be furnished to State Institutions, previous to awarding the contracts. Prior to the inauguration of this system, dealers frequently submitted an excellent sample of goods with their bid, but supplied vastly inferior goods in their deliveries. Under the present system, detailed specifications are required, and in most instances, the submission of samples with the bids. When the deliveries are made, samples are delivered to the Bureau of Foods and Drugs for analysis and examination, in order to compare such deliveries with the original bid samples.

In this manner, a high quality of food has been maintained for the institutions, and this system has also assisted in getting the proper value for the money expended.

During the fiscal year ending June 30, 1917, 1,231 samples were analyzed and examined for the State Board of Control for said year, 201 of these samples did not conform to specifications.

During the fiscal year ending June 30, 1915, 517 samples were analyzed or examined, 113 failing to conform to specifications.

The samples analyzed during these two fiscal years are as follows:

STATE INSTITUTION SAMPLES.

Year Ending June 30, 1917.

- Acetic Acid**—Two of the five samples examined were rejected on account of being deficient in strength.
- Ammonia**—One of the six samples examined was found deficient in strength.
- Baking Powder**—Five of the twenty-three samples analyzed were deficient in strength.
- Baking Powder Substitutes**—Two samples were analyzed and passed.
- Baking Soda**—Ten samples were analyzed and found pure.
- Blankets**—Five samples examined and passed.
- Bluing**—Nine samples were examined, none of which conformed to specifications.
- Boric Acid**—One sample analyzed and passed.
- Butter**—Ten samples were analyzed and passed.
- Calcium Acid Phosphate**—One sample was analyzed and passed.
- Capsteam**—One sample analyzed and passed.
- Caustic Soda**—One sample analyzed and passed.
- Cerata**—Twenty-seven samples were analyzed; two were rejected.
- Churn**—Two of the eleven samples analyzed were rejected as not conforming to specifications.
- Chloride of Lime**—One sample analyzed and passed.
- Chocolate and Cocoa**—Six of the twenty-two samples analyzed were rejected as not conforming to specifications.
- Coconut**—One sample analyzed and passed.
- Coffee**—Six of the sixty-nine samples rejected did not conform to specifications.
- Coffee Substitutes**—One of twelve samples examined was rejected as an inferior product.
- Condiments**—Twenty samples were analyzed; one was rejected on account of excessive bacteria and mold.
- Cream of Tartar Substitute**—Three samples were analyzed and passed.
- Cutlery**—Ten samples were examined and passed.
- Disinfectants**—One of the nine samples examined was rejected as not conforming to specifications.
- Eggs**—One sample was analyzed and found to be weak and stale; rejected.
- Fats**—Thirteen samples were analyzed and passed.
- Fish**—Three of the thirty-seven samples analyzed were rejected.
- Fish Killing Fluid**—One sample examined and passed.
- Fish Canned**—Three of the twenty-five samples examined did not conform to specifications.
- Fruit**—Eighteen of the eighty-two samples examined did not conform to specifications.
- Fruit**—Sixty-five samples were analyzed; nineteen rejected.
- Vegetables**—Two of the five samples analyzed did not conform to specifications.
- Flour, Cured**—One sample examined and passed.
- Flour**—Three samples examined and passed.
- Fish**—Five samples analyzed and passed.
- Grease**—Five of the thirteen samples examined were deficient in quality.
- Sanitary Metal**—One sample examined and passed.
- Gas**—Four samples analyzed and passed.
- Knives**—One of the three samples tested did not conform to specifications.
- Meats**—Three samples were examined; two rejected as not conforming to specifications.
- Milk, Sterile**—One of the ten samples analyzed did not conform to specifications.
- and Lubricating**—Six samples were analyzed and passed.
- Oil**—Twenty-three samples were examined; one was found to be rejected.
- Iron Boiler**—One sample examined.

Rice—Nineteen samples examined and passed.

Salt—Eleven samples analyzed and passed.

Shoe Polish—Two of the four samples examined were inferior products and were rejected.

Soap Powders and Cleansers—Four of the thirty-eight samples examined did not meet the specifications.

Soap Chips, Laundry and Toilet Soap, Liquid Soap—One hundred and five samples were analyzed; thirty-four of these contained excessive water, or excessive filler, or both.

Spices—Thirty of the one hundred and ten samples analyzed were inferior in quality and were rejected.

Starch, Corn—Two samples were analyzed and passed.

Starch, Laundry—Six samples were analyzed and passed.

Sugar—Twenty-three samples were analyzed and passed.

Syrup—Thirty-eight samples were analyzed and passed.

Tallow—None of the seven samples analyzed conformed to specifications.

Tapoca—Ten samples were examined and passed.

Tea—One of the thirty-eight samples examined was inferior in quality and was rejected.

Tobacco—Fifteen of the fifty-four samples examined did not conform to specifications.

Turpentine—Three samples were analyzed and passed.

Vegetables, Canned—Fourteen of the eighty samples analyzed did not conform to specifications.

Vinegar—Twenty-two samples were analyzed; two were rejected because of adulteration.

STATE INSTITUTION SAMPLES.

Year Ending June 30, 1918.

Baking Powder—Six samples were analyzed; one was found to be deficient in strength and was rejected.

Baking Soda—Three samples were analyzed and passed.

Blankets—One sample was examined and passed.

Borax—One sample was examined and passed.

Butter—Forty-five samples were examined; twenty-four were found to be inferior in quality.

Calcium Acid Phosphate—One sample analyzed and passed.

Cereals—Twelve samples were analyzed; one was rejected as not conforming to specifications.

Cheese—Three of the eight samples examined did not conform to specifications.

Chocolate—One of the six samples analyzed was inferior in quality.

Coffee—Four of the forty-three samples examined did not meet the specifications.

Condiments—Seventeen samples were examined; one contained excessive bacteria and was rejected.

Crackers—One of the three samples examined did not conform to specifications.

Cream of Tartar—Two of the three samples analyzed were inferior products and were rejected.

Cream of Tartar Substitute—One of the five samples analyzed was rejected as not conforming to specifications.

Extracts—Two of the thirteen samples analyzed were deficient in strength and were rejected.

Feed—Three of the twenty-three samples analyzed did not conform to specifications and were rejected.

Fish, Canned—Two of the five samples analyzed did not meet the specifications.

Flour—Six of the thirty-five samples analyzed were below the requirements.

Fruit—Two of the twenty-one samples examined did not conform to specifications.

Gelatine—Three samples were analyzed and passed.

Hair Dye—Two samples were analyzed and found to contain injurious ingredients.

Jelly—Three samples were analyzed and passed.

Lard—Two samples were analyzed and passed.

Lard Compound—One of the four samples analyzed did not meet the specifications.

Linotype Metal—One sample was examined and passed.

Lye—Three samples were examined and passed.

Matches—One sample was examined and found not to conform to specifications.

Meat—Five samples were analyzed; one sample of Frankfurters was found to contain excessive cereal and was rejected.

Milk—One sample was analyzed and passed.

Oils, Edible—One of the five samples analyzed did not conform to specifications.

Oils, Lubricating—Two samples were analyzed and passed.

Pastes, Alimentary—Eleven samples were analyzed; three did not conform to the specifications and were rejected.

Soap—Seven of the thirty-four samples analyzed contained excessive water, excessive filler, or both.

Spices—Sixteen of the eighty samples analyzed were inferior in quality and were rejected.

Starch, Laundry—Four samples analyzed and passed.

Sugar—Three samples analyzed and passed.

Syrup—Fourteen samples were analyzed and passed.

Tallow—One sample was analyzed and passed.

Tea—Thirty-three samples were examined; fourteen were rejected as not conforming to specifications.

Tobacco—Two samples were examined and passed.

Turpentine—One sample was analyzed and passed.

Varnish—One sample was analyzed and passed.

Vegetables—Two of the eleven samples analyzed did not meet the specifications.

Vinegar—Twenty-one samples were analyzed and passed.

MATERIAL CONDEMNED AND DESTROYED.

Year Ending June 30, 1917.

Acid, aceto salicylic.....	14 oz.	Groceries, miscel.....	1,168 lbs.
Almonds.....	445 lbs.	Ham, pressed.....	17 lbs.
Anchovies.....	30 tins	Herrings.....	120 lbs.
Aspirin.....	300 tabs.	Hominy.....	2,283 lbs.
Baking powder.....	528 lbs.	Ice cream.....	1 gal.
Barley, pearl.....	10 lbs.	Jelly.....	37 lbs.
Beans, dried.....	621 lbs.	Liquor.....	22½ gals.
Beef cheeks.....	165 lbs.	Mackerel.....	2 cans
Beef, concentrated.....	1 pint	Meats.....	80 lbs.
Beef, corned.....	121 lbs.	Medicine.....	234 bots.
Beef extract.....	5 boxes	Milk, evaporated.....	24,284 lbs.
Bloaters.....	50 lbs.	Mince meat.....	312 lbs.
Bread.....	250 loaves	Molasses.....	75 lbs.
Butter.....	418 lbs.	Mustard, ground.....	2 lbs.
Cakes.....	29 lbs.	Olives.....	23 lbs.
Canned goods misc.....	6,485 lbs.	Olive oil.....	10 lbs.
Cereals.....	3,758 lbs.	Oranges.....	1½ boxes
Cheese.....	301 lbs.	Oysters.....	2 cans
Chicken.....	36 lbs.	Pastry filler.....	30 lbs.
Clams.....	2 cans	Peanuts.....	153 lbs.
Clam chowder.....	5 qts.	Pears, dried.....	50 lbs.
Cocoanut shreds.....	300 lbs.	Pickles.....	600 lbs.
Cod.....	50 lbs.	Prunes, dried.....	50 lbs.
Codfish, dried.....	60 lbs.	Poultry.....	2 only
Coffee.....	3,150 lbs.	Raisins, seeded.....	26 lbs.
Condiments.....	3,739 lbs.	Rice.....	200 lbs.
Confectionery.....	250 lbs.	Roll mops, Thelma brand.....	218 lbs.
Cranberries.....	6 lbs.	Salmon.....	450 lbs.
Currants.....	45 lbs.	Sardines.....	1,041 cans
Drugs, miscellaneous.....	39 pkgs.	Sauerkraut.....	100 qts
Eggs, incubator.....	12 doz.	Sausage.....	24 lbs.
Eggs, frozen.....	1,200 lbs.	Shrimps.....	34 lbs.
Extracts.....	9 bots.	Snails, bakers'.....	250
Figs, dried.....	15 lbs.	Strawberries.....	8 cans
Filbert nut meats.....	500 lbs.	Syrup.....	9 lbs.
Fish, canned.....	39 cans	Tomatoes and tomato products.....	158,856 lbs.
Flour.....	2,100 lbs.	Vegetables, canned.....	43 lbs.
Gelatine.....	1,065 lbs.	Veronal.....	83 tabs.
Grapes, dried.....	44 lbs.	Walnuts.....	9,745 lbs.
Grape juice nectar.....	6 bots.		

COLD STORAGE GOODS CONDEMNED AND DESTROYED.

Year Ending June 30, 1917.

Beef tenders.....	50 lbs.	Meat scraps.....	2,235 lbs.
Butter.....	24 lbs.	Phensants.....	880 lbs.
Chile peppers.....	4,720 lbs.	Pork.....	620 lbs.
Egg meats.....	35 lbs.	Poultry.....	1,975 lbs.
Lamb tongues.....	2 cases	Rabbits.....	330 lbs.
Lamb saddles.....	60 lbs.	Sweetbreads.....	50 lbs.
Liver.....	100 lbs.	Veal.....	120 lbs.
Lobsters.....	300 lbs.	Walnut meats.....	977 lbs.

FOODS AND DRUGS CONDEMNED AND DESTROYED.

Year Ending June 30, 1918.

Almonds.....	25 lbs.	Livers.....	25 lbs.
Anchovies.....	311 cans	Meats:	
Apple butter.....	24 lbs.	Bacon.....	19 jars
Beans, dried.....	27,300 lbs.	Beef, fresh.....	500 lbs.
Bitters, Marshall's.....	2 bots.	Beef, corned.....	1 can
Brains.....	490 lbs.	Beef, dried.....	1 can
Buckwheat flour.....	800 lbs.	Lambs' tongue.....	2 jars
Butter.....	36 lbs.	Sausage.....	25 lbs.
Candy.....	175 lbs.	Meat paste (4-oz.).....	120 cans
Canned goods, miscel.....	16 lbs.	Milk, evaporated.....	2,651 lbs.
Cheese.....	2,614 lbs.	Nitre, sweet spirits of.....	5 lbs.
Chile.....	25 lbs.	Oil, salad.....	118 bots.
Chocolate.....	10½ lbs.	Oil, olive.....	½ gal.
Cocoanut shreds.....	5 lbs.	Olives.....	14,745 lbs.
Coffee.....	4 gals.	Onions, dried.....	80 lbs.
Condiments.....	3,640 lbs.	Pastry filler.....	45 lbs.
Crackers.....	50 lbs.	Peanuts.....	85 lbs.
Crabs.....	500 lbs.	Pigeons.....	10 lbs.
Cumin seed.....	4 lbs.	Poppy seed.....	3½ lbs.
Currants, dried.....	52 lbs.	Potatoes.....	11,900 lbs.
Digitalis herb.....	1 lb.	Poultry.....	50 lbs.
Eggs.....	20½ doz.	Preserves.....	6 jars
Egg substitutes.....	40 lbs.	Rock cod.....	2,250 lbs.
Fish, canned, smoked.....	1,942 lbs.	Sirup.....	1 gal.
Frogs.....	75 lbs.	Sole.....	50 lbs.
Fruits, canned.....	12 pts.	Soup.....	1 can
Fruits, dried.....	112,878 lbs.	Squabs.....	500 cans
Fruit, fresh.....	10 lbs.	Tomatoes, fresh.....	78,740 lbs.
Gelatine.....	3,190 lbs.	Tomato puree.....	390,211 lbs.
Haddies.....	25 lbs.	Tomatoes, canned.....	1,056 No. 10s
Ham.....	20 lbs.	Tomato pulp.....	205 gals.
Herrings.....	284 lbs.	Tomato paste.....	256 lbs.
Hominy.....	2 lbs.	Vegetables, canned, misc.....	10 lbs.
Jel-Easy.....	2 pkgs.	Vegetable compound	
Kidneys.....	150 lbs.	(Antipasto-Sport).....	3,280 cans
Kream Krisp.....	2 lbs.	Vinegar.....	414 gals.
Lobsters.....	8,000 lbs.	Walnut meats.....	4,244 lbs.

COLD STORAGE GOODS CONDEMNED AND DESTROYED.

Year Ending June 30, 1918.

Clams.....	400 lbs.	Olives.....	175 lbs.
Fish roe.....	20 lbs.	Rabbits.....	150 lbs.
Frogs.....	10 lbs.	Trout.....	200 lbs.
Herrings, salt.....	2,850 lbs.	Walnut meats.....	500 lbs.

MATERIALS IN COLD STORAGE.

During the Year July 1, 1916, to June 30, 1917.

Quarter Ending September 30, 1916.

Beer.....	207 ¾-bbls.	Horseradish.....	43,070 lbs.
Do.....	112 bbls.	Fruit:	
Bulbs.....	2,250 lbs.	Apples.....	173,182 lbs.
Butter.....	1,039,700 lbs.	Do.....	17 bbls.
Do.....	2,355 boxes	Crabapples.....	213 boxes
Candy.....	4,100 lbs.	Currants.....	1 box
Cheese.....	2,246 cases	Figs.....	120 lbs.
Do.....	1,632,358 lbs.	Grapefruit.....	55 boxes
Cider.....	5 bbls.	Grapes.....	687 boxes
Eggs.....	57,475 cases	Peaches.....	1,840 boxes
Dried.....	940 cases	Do.....	5,782 lbs.
Frozen.....	16,395 lbs.	Pears.....	1,335 boxes
Fish:		Do.....	37,222 lbs.
Bloaters.....	114,930 lbs.	Persimmons.....	16 boxes
Dried.....	115,824 lbs.	Strawberries.....	5 bbls.
Frozen.....	76,168 lbs.	Do.....	36 pkgs.
Miscellaneous.....	8,130 lbs.	Miscellaneous—Dried.....	552 boxes
Haddies.....	71,430 lbs.	Miscellaneous—Dried.....	56,748 lbs.
Pickarel.....	43,070 lbs.	Frozen.....	48,480 lbs.
Shellfish.....	36,680 lbs.	Canned.....	200 lbs.

REPORT OF THE STATE BOARD OF HEALTH.

MATERIALS IN COLD STORAGE—(Continued).

During the Year July 1, 1916, to June 30, 1917.

Fruit syrup	4 bbls.	Do.	57 sacks
Lard	500 lbs.	Plants and plant leaves	1,305 lbs.
Meat:		Popcorn	16 sacks
Bacon	267 lbs.	Poultry	127 pkgs.
Beef	52 $\frac{1}{2}$ s	Do.	287,547 lbs.
Ham	166 lbs.	Rabbits	9 pkgs.
Livers	5 only	Tallow	413 lbs.
Miscellaneous	549,889 lbs.	Vegetables:	
Do.	19 pkgs.	Cauliflower	9 crates
Pickled	84,400 lbs.	Chile, dried	61,026 lbs.
Pork loins	81 cases	Lettuce	18 crates
Sausage	27 cases	Mushrooms	800 lbs.
Mincemeat	440 lbs.	Onions	1,968 boxes
Do.	3 bbls.	Do.	4,855,025 lbs.
Nuts and nutmeats	435,629 lbs.	Peppers	2,200 lbs.
Do.	81 cases	Potatoes	4,206 lbs.

Quarter Ending December 31, 1916.

Beer	66 $\frac{1}{2}$ -bbls.	Horseradish	74 bbls.
Do.	153 $\frac{1}{2}$ -bbls.	Do.	48,493 lbs.
Do.	126 bbls.	Lard	555 lbs.
Bulbs	6,085 lbs.	Meat:	
Butter	407 cases	Bacon	237 lbs.
Do.	529,206 lbs.	Ham	109 lbs.
Candy	1,800 lbs.	Hams, bellies, pickled	44,200 lbs.
Cheese	1,028 cases	Miscellaneous meat	2,255,903 lbs.
Do.	1,936,856 lbs.	Do. and poultry	1,205,654 lbs.
Eggs	679,923 cases	Mutton, frozen	11 cases
Frozen	25,790 lbs.	Sausage	175 lbs.
Egg meats	112,880 lbs.	Mincemeat	215 lbs.
Fish:		Nuts:	
Blotters	59,610 lbs.	Almonds	110 lbs.
Haddie	59,220 lbs.	Miscellaneous	2,057 lbs.
Miscellaneous	32,217 lbs.	Walnuts	20 lbs.
Dried	112,274 lbs.	Nut meats	11 bbls.
Frozen	72,668 lbs.	Do.	31 cases
Pickled	287,300 lbs.	Do.	123,299 lbs.
Smoked	2,900 lbs.	Plants and plant leaves	1,237 lbs.
Shellfish	18,000 lbs.	Poultry	979,093 lbs.
Fruit:		Do.	113 cases
Apples	264,552 cases	Do.	2 bbls.
Do.	282,569 lbs.	Strawberry syrup	1 bbl.
Cranberries	200 bbls.	Vegetables:	
Do.	300 lbs.	Cauliflower	7 crates
Grapes	7,532 boxes	Celery	11 cases
Do.	313 boxes	Chile, dried	9,422 lbs.
Oranges	1,480 lbs.	Lettuce	13 crates
Do.	80 boxes	Miscellaneous	237 boxes
Pears	2,062 lbs.	Mushrooms	1,735 lbs.
Do.	197 boxes	Onions	5,987,740 lbs.
Persimmons	48,602 lbs.	Peppers	21 boxes
Strawberries	2,200 lbs.	Do.	19,200 lbs.
Miscellaneous	2 bbls.	Potatoes	4,762 sacks
Dried	8,484,583 lbs.	Do.	106,851 boxes
Do.	50,595 lbs.	Do.	2,011,518 lbs.
Frozen	42 boxes	Tomatoes	60 boxes
In glass	31,080 lbs.		
	100 lbs.		

Quarter Ending March 31, 1917.

Beer	424 $\frac{1}{2}$ -bbls.	Fruit	777,259 lbs.
Do.	37 $\frac{1}{2}$ -bbls.	Fruits:	
Do.	54 bbls.	Apples	4,814,458 lbs.
Do.	7 pkgs.	Canned	12,192 lbs.
Bulbs	15,245 lbs.	Dried	89,318 lbs.
Butter	10,769 lbs.	Fresh	2,480,369 lbs.
Che	864,633 lbs.	Hops	50 pkgs.
Do		Horseradish	102,500 lbs.
	2,018,009 doz.	Do.	5 pkgs.
	808,864 lbs.	Lard	393 lbs.

MATERIALS IN COLD STORAGE—(Continued).

Quarter Ending March 31, 1917—(Continued).

Meats, miscellaneous	4,162,969 lbs.	Syrup	2,523 lbs.
Nut meats	149,966 lbs.	Vegetables:	
Pickles	3 pkgs.	Miscellaneous	80,639 lbs.
Plants and plant leaves	2,640 lbs.	Onions	96,375 lbs.
Poultry	1,303,638 lbs.	Potatoes	16,343,759 lbs.
Spices	4,313 lbs.		

Quarter Ending June 30, 1917.

Butter	1,576,632 lbs.	Lard	866,329 lbs.
Candy	68,065 lbs.	Lard substitute	9,762 lbs.
Cereals	70,124 lbs.	Meat:	
Cheese	1,374,095 lbs.	Cured	4,825 lbs.
Eggs:		Fresh	4,413,096 lbs.
Canned	10,460 lbs.	Frozen	24,024 lbs.
Fresh	7,786,035 doz.	Pickled	185,700 lbs.
Frozen	144,775 lbs.	Milk	170 lbs.
Fish:		Nuts:	
Dried	192,810 lbs.	Meats	471,237 lbs.
Fresh	759,356 lbs.	In shell	128,480 lbs.
Frozen	85,800 lbs.	Poultry	2,807,986 lbs.
Pickled	246,800 lbs.	Salad oil	5,000 lbs.
Shell	26,500 lbs.	Vegetables:	
Smoked	308,468 lbs.	Onions	107,400 lbs.
Fruit:		Potatoes	766,329 lbs.
Dried	369,836 lbs.	Miscellaneous	211,435 lbs.
Canned	950 lbs.		
Fresh	628,387 lbs.		
Frozen	5,200 lbs.		

During the Year July 1, 1917, to June 30, 1918.

Quarter Ending September 30, 1917.

Beer	6,992 gals.	Peaches	2,546,578 lbs.
Butter	1,635,502 lbs.	Pears	1,231,670 lbs.
Cereals	2,034 lbs.	Plums	69,591 lbs.
Cheese	4,510,244 lbs.	Quinces	214 lbs.
Chocolate	2,500 lbs.	Raspberries	1,500 lbs.
Citron	450 lbs.	Strawberries	144,180 lbs.
Cocconut	10,517 lbs.	Horseradish	52,760 lbs.
Confectionery	66,736 lbs.	Lard	183,986 lbs.
Eggs:		Lard substitute	3,799 lbs.
Canned	3,784 lbs.	Meat (miscellaneous)	3,062,741 lbs.
Cold stored	5,304,481 doz.	Mincemeat	11,478 lbs.
Egg meats	425,500 lbs.	Nuts	146,585 lbs.
Frozen eggs	117,201 lbs.	Nut meats	465,922 lbs.
Fish:		Paprika	1,065 lbs.
Miscellaneous	781,750 lbs.	Peanut oil	1,158 lbs.
Pickled	295,400 lbs.	Peppers, chilli	8,715 lbs.
Shellfish	28,200 lbs.	Popcorn	14,164 lbs.
Flour	83,833 lbs.	Poultry	1,652,303 lbs.
Fruit:		Suetene	18,000 lbs.
Apples	3,440,487 lbs.	Syrup	2,387 lbs.
Blackberries	6,000 lbs.	Vegetables:	
Cranberries	26,040 lbs.	Beans	11,095 lbs.
Currants	15,899 lbs.	Celery	100 lbs.
Dried fruit	277,253 lbs.	Lettuce	50 lbs.
Fresh fruit, miscel.	10,048,478 lbs.	Mixed vegetables	150 lbs.
Grapes	144,244 lbs.	Mushrooms	16,610 lbs.
Grapefruit	500 lbs.	Onions	10,603,352 lbs.
Loganberries	50,874 lbs.	Potatoes	81,918 lbs.
Melons	2,520 lbs.	Tomatoes	353 lbs.
Oranges	823,386 lbs.	Turnips	180 lbs.

Quarter Ending December 31, 1917.

Beer	10,531 gals.	Compound	769 lbs.
Butter	604,838 lbs.	Eggs	516,015 doz.
Cereals	225 lbs.	Canned	1,240 lbs.
Cheese	3,373,817 lbs.	Frozen	79,079 lbs.
Cider	50 bbls.	Egg meats	271,776 lbs.
Citron	600 lbs.	Fish	1,517,066 lbs.

MATERIALS IN COLD STORAGE—(Continued).

Quarter Ending December 31, 1917—(Continued).

Fruit:		Meats, miscellaneous	3,474,581 lbs.
Apples	30,228,018 lbs.	Ham and bacon	850 lbs.
Apricots	632 lbs.	Whale meat	29,999 lbs.
Berries	6,642 lbs.	Mince meat	5,810 lbs.
Cocanut	6,760 lbs.	Nuts	48,725 lbs.
Cranberries	17,600 lbs.	Peanut oil	386 lbs.
Currants	190 lbs.	Popcorn	510 lbs.
Dates	3,318 lbs.	Poultry	929,130 lbs.
Dried fruit	63,394 lbs.	Syrup	306 bbls.
Figs	1,740 lbs.	Sweethreads	405 lbs.
Grapes	184,798 lbs.	Vegetables:	
Miscellaneous	11,773,923 lbs.	Artichokes	165 lbs.
Oranges and lemons	8,378 lbs.	Beans	5,480 lbs.
Peaches	11,880 lbs.	Beets	70 lbs.
Pears	243,356 lbs.	Cabbage	4,724 lbs.
Persimmons	2,160 lbs.	Carrots	695 lbs.
Plums	124 lbs.	Cauliflower	770 lbs.
Quinces	639 lbs.	Celery	29,650 lbs.
Raisins	31,538 lbs.	Lettuce	936 lbs.
Strawberries	49,680 lbs.	Mushrooms	16,800 lbs.
Horseradish	113,450 lbs.	Potatoes, white	1,716,544 lbs.
Kraut	1 bbl.	Potatoes, sweet	13,200 lbs.
Lard	327,838 lbs.	Tomatoes	4,820 lbs.
Lard substitute	1,125 lbs.		

During the Year July 1, 1917, to June 30, 1918.

Quarter Ending March 31, 1918.

Beer	34,733 gals.	Fruit:	
Bulbs, plants, etc.	27,001 lbs.	Apples	14,794,002 lbs.
Butter	800,588 lbs.	Berries	1,173,049 lbs.
Cheese	1,667,699 lbs.	Dried	146,065 lbs.
Cider	3,906 gals.	Frozen	6,182 lbs.
Condiments:		Miscellaneous	4,937,111 lbs.
Catsup	315,500 lbs.	Pears	37,160 lbs.
Pickles	32,684 lbs.	Oranges	29,200 lbs.
Cooking compound	987 lbs.	Milk, condensed	258,298 lbs.
Eggs:		Nuts	10,204 lbs.
Dried	20 lbs.	Nut meats	219,337 lbs.
Fresh	2,315,728 doz.	Oleomargarine	82,379 lbs.
Frozen	180,950 lbs.	Pol	327 lbs.
Lard	113,947 lbs.	Poultry:	
Meat:		Chickens	310,989 lbs.
Beef	195,280 lbs.	Miscellaneous	790,700 lbs.
Ham and bacon	1,250 lbs.	Turkeys	295,828 lbs.
Miscellaneous	2,419,024 lbs.	Syrup	54 bbls.
Mutton	700 lbs.	Vegetables:	
Pork	618,047 lbs.	Beans	2,220 lbs.
Veal	350 lbs.	Celery	110,000 lbs.
Fish:		Horseradish	108,103 lbs.
Bloaters	117,690 lbs.	Miscellaneous	326,264 lbs.
Dried	180,030 lbs.	Onions	5,368,524 lbs.
Frozen	27,300 lbs.	Potatoes	17,802,819 lbs.
Miscellaneous	139,101 lbs.	Tomatoes	800 lbs.
Pickled	189,625 lbs.	Whale meat	27,266 lbs.
Shell	4,500 lbs.	Wine	25 bbls.
Smoked	132,900 lbs.		

Quarter Ending June 30, 1918.

Beer	2,396 bbls.	Eggs:	
Berry plants, bulbs and leaves	745,838 lbs.	Fresh	8,700,360 doz.
Butter	2,351,932 lbs.	Frozen	342,149 lbs.
Catsup and pickles	88,160 lbs.	Fish:	
Cereals	9,908 lbs.	Cured	808,770 lbs.
Cheese	1,828,442 lbs.	Fresh	309,726 lbs.
Cider	54 lbs.	Frozen	136,600 lbs.
Cider	54 gals.	Shell	13,400 lbs.
Confectionery	37,630 lbs.		

MATERIALS IN COLD STORAGE—(Continued).

During the Year July 1, 1917, to June 30, 1918.

Quarter Ending June 30, 1918—(Continued).

Fruit:		Oils, olive and cottonseed	8,155 lbs.
Apples -----	12,920 lbs.	Oleomargarine and cooking compound -----	90,227 lbs.
Dried -----	1,565,428 lbs.	Poultry -----	992,996 lbs.
Fresh, miscellaneous -----	230,409 lbs.	Preserves -----	22,120 lbs.
Ice cream -----	39 pkgs.	Sausage casings -----	5 bbls.
Juice, fruit -----	400,588 lbs.	Syrup -----	16 gals.
Lady bugs -----	40 pkgs.	Vegetables:	
Lard -----	175,862 lbs.	Miscellaneous -----	479,399 lbs.
Meats:		Onions -----	280,488 lbs.
Cured, ham and bacon -----	422,175 lbs.	Potatoes -----	9,279,930 lbs.
Frozen -----	16,498 lbs.	Sauerkraut -----	14,690 lbs.
Mincedmeat -----	5,600 lbs.	Seed potatoes -----	200 lbs.
Miscellaneous -----	1,669,497 lbs.	Whale meat -----	27,028 lbs.
Milk, condensed -----	16,844 cases		
Nuts and nut meats -----	683,011 lbs.		

The California Cold Storage Act permits the storage of food products for a period of twelve months. If further time is desired the owners must make application for an extension of this period. The goods are then examined by the State Board of Health, and if found in suitable condition, further extension is granted.

The following goods were found, upon inspection, to be in excellent condition, and for this reason extensions were granted as indicated.

LIST OF EXTENSIONS GRANTED FOR MATERIALS IN COLD STORAGE.

Biennial Period Ending June 30, 1918.

Material	Amount	Locality	Extension granted
Candy -----	4 bbls.	Los Angeles...	1 year
Cheese -----	44,505 lbs.	San Francisco	1 year
Eggs—			
Frozen yolks -----	21,868 lbs.	San Francisco	1 year
Frozen yolks -----	12,408 lbs.	Los Angeles...	1 year
Frozen whites -----	7,788 lbs.	San Francisco	1 year
Frozen whites -----	12,056 lbs.	Los Angeles...	1 year
Frozen whites -----	616 lbs.	Oakland.....	1 year
Frozen mixed -----	6,680 lbs.	Los Angeles...	1 year
Fish—			
Dry salt -----	5 tubs	San Francisco	1 year
Bloaters -----	21,905 lbs.	San Francisco	1 year
Herrings -----	1,217½ lbs.	San Francisco	1 year
Mackerel -----	3,562½ lbs.	San Francisco	1 year
Miscellaneous -----	88,392½ lbs.	San Francisco	1 year
Fruit—			
Figs -----	4,960 lbs.	San Francisco	1 year
Pulp -----	700 gals.	Los Angeles...	6 months
Pulp, orange -----	11 bbls.	Los Angeles...	1 year
Raisins -----	6,300 lbs.	Los Angeles...	3 months
Meats—			
Ham -----	13 cases	San Francisco	1 year
Sweetbreads -----	2,750 lbs.	San Francisco	6 months
Nuts—			
Almonds -----	24 cases	Los Angeles...	1 year
Miscellaneous -----	12 boxes	Los Angeles...	1 year
Pea meal -----	110 lbs.	Los Angeles...	1 year
Poultry—			
Broilers -----	5,320 lbs.	Oakland.....	1 year
Squabs -----	52 doz.	Los Angeles...	1 year
Vegetables—			
Chili peppers -----	66 sacks	Los Angeles...	6 months
Horseradish -----	171 bbls.	Los Angeles...	1 year
Mushrooms -----	13 cases	San Francisco	1 year
Mushrooms -----	37 boxes	San Francisco	1 year

SUMMARY OF ANALYTICAL WORK.

July 1, 1916, to June 30, 1917.

Foods and Food Products—Official.

Material	Legal samples	Illegal samples	Total samples
Beverages	33	21	54
Bread	10	25	35
Bread improver		1	1
Butter	5	4	9
Cereal	1		1
Cheese	1		1
Chocolate and cocoa	5	8	13
Cocoa substitute	1		1
Cocoanut	1		1
Coffee	5	27	32
Coffee and chicory	1		1
Condiments	78	60	137
Confectionery	27	6	33
Crackers	1		1
Cream	1	2	3
Cream of tartar	2		2
Eggs	12	105	117
Egg substitutes		7	7
Extracts	30	43	73
Feed		2	2
Fish and oysters, canned	34	30	64
Flour	7	4	11
Fruits	4	9	13
Gelatine	7	9	16
Gum scrap		1	1
Honey	2		2
Ice cream	32	10	42
Ice cream powder	2		2
Icing	2		2
Jellies, jams and preserves	9	8	17
Lard	1		1
Liquors	44	256	300
Meats	48	68	111
Milk	62	138	200
Nuts and nut meats	1	13	14
Nut compounds		1	1
Oils, edible	7	5	12
Pastes, alimentary	13	6	19
Pastry	7	11	18
Pork and beans	1	3	4
Ravioli	2		2
Salt	1		1
Soda, bicarbonate		1	1
Soup, canned		1	1
Spices	31	9	40
Syrups, fountain	11	28	39
Syrups, table	4	16	20
Tea		1	1
Vegetables	68	26	94
Vinegar	34	9	43
Waters, mineral	1	1	2
Totals	649	979	1,628

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Foods and Food Products—Unofficial.

Material	Legal samples	Illegal samples	Total samples
Beverages	7	3	10
Bouillon cubes	1		1
Bread		2	2
Butter		1	1
Cheese	1	1	2
Chocolate		16	16
Cocoanut	1	3	4
Coffee		1	1
Condiments	5	16	21
Confectionery	2		2
Cream	4		4
Eggs	5	1	6
Egg yolk, dried		1	1
Egg substitute		1	1
Dextri-maltose	1		1
Extracts	2	2	4
Fish, canned	11	15	26
Fish, fresh	1	1	1
Flour	17		17
Fruit	12	6	18
Gelatine	8	12	20
Ice cream	2		2
Ice cream filler	3		3
Ice cream powder	2	1	3
Icine	2		2
Jellies and jams	9	6	15
Jelly powder	1		1
Lard bleacher	1		1
Liquors	29	4	33
Meats	2	12	14
Milk, whole	4		4
Milk, evaporated	15	39	54
Milk, malted	3		3
Milk, powdered		1	1
Nuts	1	21	22
Nut compound	1		1
Olfs, edible	4	1	5
Olives	2		2
Pastes, alimentary	6		6
Rice	4		4
Spice	6	2	8
Sugar	1		1
Syrup, table	2		2
Vegetables	19	21	40
Vegetable compounds		2	2
Vinegar	3	4	7
Veg paraf	1		1
Totals	200	196	396

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Drugs.

Material	Legal samples	Illegal samples	Total samples
Acid compounds and tablets.....	3	6	9
Aconite, tincture of.....	5		5
Alcohol.....		11	11
Aspirin tablets.....	4	8	12
Asthma remedy.....		1	1
Belladonna, tincture of.....	3		3
Blackberry balsam.....		1	1
Camphor compounds.....	18	18	36
Opium.....	1	1	2
Celery compound.....	1	1	2
Cod liver oil.....	1		1
Colic cure.....	1		1
Corn remedy.....		1	1
Digitalis, tincture of.....	17		17
Flaxseed meal.....	1		1
Ginger compounds.....	1	3	4
Hair tonic.....		2	2
Hyoscyamus, tincture of.....	9		9
Iodine, tincture of.....	26	8	34
Iron, tincture of.....		1	1
Liniment.....		2	2
Lysol.....	2		2
Magnesia, citrate of.....	2	2	4
Miscellaneous remedies.....		5	5
Nitre compounds.....		2	2
Nux vomica, tincture of.....	1		1
Oils.....	1	17	18
Peppermint compounds.....	4		4
Phenacetin.....	1		1
Pills.....	1		1
Port.....		3	3
Quinine.....	1		1
Rheumatism cure.....		1	1
Salve.....		1	1
Strophanthus, tincture of.....	5		5
Tooth pastes and powders.....		1	1
Veronal.....		1	1
Waters.....	1	1	2
Witch hazel.....	2		2
Totals.....	112	98	210

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Drugs—Unofficial.

Material	Legal samples	Illegal samples	Total samples
Acid and alk tablets.....		2	2
Catarrh cure.....		1	1
Glin.....		1	1
Liver remedy.....		1	1
Miscellaneous.....		1	1
Oils.....		1	1
Veronal.....	5		5
Waters.....	3	1	4
Totals.....	8	8	16

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Miscellaneous.

Material	Legal samples	Illegal samples	Total samples
Apricot pits.....	1		1
Colors.....	1		1
Food.....	4		4
Preservatives.....	2		2
Tobacco—cigarettes.....	2		2
Wool.....	1		1
Totals.....	11		11

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Foods and Food Products.

Cold Storage.

Material	Number not in violation of California Pure Food Act	Number in violation of California Pure Food Act	Total
Butter.....	4		4
Cheese.....	2		2
Condiments.....		1	1
Eggs.....		38	38
Fish.....	5	5	10
Flour.....	3		3
Fruit.....		7	7
Meat.....	6	1	7
Milk.....		1	1
Poultry.....		4	4
Nuts.....		4	4
Vegetables.....	1	1	2
Totals.....	21	62	83

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Foods and Food Products.

Unofficial.

State Institutions.

Material	Conforming to specifications	Not conforming to specifications	Total
Baking powder	38	5	43
Baking powder substitutes	2		2
Baking soda	10		10
Butter	10		10
Cereals	75	2	77
Cheese	9	2	11
Chocolate and cocoa	16	6	22
Coconut	1		1
Coffee	68	6	74
Coffee substitutes	11	1	12
Condiments	19	1	20
Cream of tartar substitute	3		3
Eggs		1	1
Extracts	13		13
Feed	34	3	37
Fish, canned	22	3	25
Flour	64	18	82
Fruit	76	19	95
Gelatine	3	2	5
Honey	3		3
Lard and lard compounds	2		2
Liquors	3		3
Meats	1	2	3
Oils, edible	9	1	10
Pastes, alimentary	22	1	23
Rice	19		19
Salt	11		11
Spices	80	30	110
Starch, corn	2		2
Sugar	23		23
Syrup	38		38
Taploca	10		10
Tea	37	1	38
Vegetables	68	14	82
Vinegar	20	2	22
Totals	806	120	926

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Foods and Food Products.

Unofficial.

State Institutions.

Material	Conforming to specifications	Not conforming to specifications	Total
Acids	3	2	5
Ammonia	5	1	6
Blankets	5		5
Bluing		9	9
Borax	1		1
Calcium acid phosphate.....	1		1
Capsicum	1		1
Caustic soda	5		5
Chloride of lime.....	1		1
Cutlery	10		10
Disinfectants	8	1	9
Fire extinguisher fluid.....	1		1
Hair, curled	1		1
Ink	5		5
Leather	8	5	13
Linotype metal	1		1
Lye	4		4
Matches	2	1	3
Oil, fuel	1		1
Oil, lubricating	5		5
Petrolatum	1		1
Powder from steam boiler.....	1		1
Shoe polish	2	2	4
Soap powders and cleansers.....	34	4	38
Soap chips, laundry, toilet and liquid soap.....	71	34	105
Starch, laundry	6		6
Tallow		7	7
Tobacco	39	15	54
Turpentine	3		3
Totals.....	225	81	306

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Foods and Food Products.

Unofficial.

State Institutions.

Material	Conforming to specifications	Not conforming to specifications	Total
Baking powder	28	5	33
Baking powder substitutes	2		2
Baking soda	10		10
Butter	10		10
Cereals	75	2	77
Cheese	9	2	11
Chocolate and cocoa	16	6	22
Cocoonut	1		1
Coffee	63	6	69
Coffee substitutes	11	1	12
Condiments	19	1	20
Cream of tartar substitute	3		3
Eggs		1	1
Extracts	13		13
Feed	34	3	37
Fish, canned	22	3	25
Flour	64	18	82
Fruit	76	19	95
Gelatine	3	2	5
Honey	3		3
Lard and lard compounds	2		2
Liquors	3		3
Meats	1	2	3
Oils, edible	9	1	10
Pastes, alimentary	22	1	23
Rice	19		19
Salt	11		11
Spices	80	30	110
Starch, corn	2		2
Sugar	23		23
Syrup	38		38
Taploca	10		10
Tea	37	1	38
Vegetables	68	14	82
Vinegar	20	2	22
Totals	806	120	926

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1916, to June 30, 1917.

Foods and Food Products.

Unofficial.

State Institutions.

Material	Conforming to specifications	Not conforming to specifications	Total
Acids	3	2	5
Ammonia	5	1	6
Blankets	5		5
Bluing		9	9
Borax	1		1
Calcium acid phosphate	1		1
Capsicum	1		1
Caustic soda	5		5
Chloride of lime	1		1
Cutlery	10		10
Disinfectants	8	1	9
Fire extinguisher fluid	1		1
Hair, curled	1		1
Ink	5		5
Leather	8	5	13
Linotype metal	1		1
Lye	4		4
Matches	2	1	3
Oil, fuel	1		1
Oil, lubricating	5		5
Petrolatum	1		1
Powder from steam boiler	1		1
Shoe polish	2	2	4
Soap powders and cleansers	34	4	38
Soap chips, laundry, toilet and liquid soap	71	34	105
Starch, laundry	6		6
Tallow		7	7
Tobacco	39	15	54
Turpentine	3		3
Totals	225	81	306

SUMMARY OF ANALYTICAL WORK.

July 1, 1917, to June 30, 1918.

Foods and Food Products.

Official.

Material	Legal samples	Illegal samples	Total samples
Beverages	6	22	28
Bouillon cubes	1		1
Bread	1	6	7
Bread dough	2		2
Butter	6	1	7
Butter fat		1	1
Cereal		1	1
Cheese	3	3	6
Chocolate	2	15	17
Coffee	1	8	9
Coffee mixture	1	1	2
Condiments	44	87	131
Confectionery	3	23	26
Cream	20	5	25
Eggs	8	44	52
Egg albumin		1	1
Egg whites	1	3	4
Egg, dried	11	1	12
Egg substitutes	8	23	31
Extracts	28	24	52
Feed	7	1	8
Fish	24	49	73
Flour	2	2	4
Fruit	10	10	20
Gelatine	1	18	19
Honey	6	3	9
Ice cream	28	8	36
Jellies and jams	12	8	20
Lard	1		1
Lard compounds and substitutes	3		3
Liquors	20	306	326
Meat	30	61	91
Milk, whole	80	43	123
Milk, condensed	6	3	9
Nuts	2	12	14
Nut paste	3		3
Oils, edible	6	4	10
Oleomargarine	1	1	2
Pastes, alimentary	7	20	27
Pastry	6	10	16
Pastry filler		1	1
Poultry		2	2
Salt	4	2	6
Spices	57	19	76
Sugar		1	1
Sugar, maple	3	8	11
Syrup, fountain	6	13	19
Syrup, table	42	62	104
Vegetables	92	110	202
Vegetable compounds		7	7
Vinegar	63	18	81
Water, mineral	15	1	16
Totals	688	1,072	1,760

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1917, to June 30, 1918.

Drugs.

Official.

Material	Legal samples	Illegal samples	Total samples
Acid, aceto salicylic.....	3	1	4
Alcohol.....	2	3	5
Blackberry cordial.....		1	1
Camphor compounds.....	15	5	20
Capsicum.....	1		1
Cascara, fluid extract.....		2	2
Corn remedy.....	1	1	2
Cubeb berries, Po.....		2	2
Grippe and cold cure.....		1	1
Hair tonic.....		11	11
Headache remedy.....		2	2
Iodine, tincture of.....	12	11	23
Liniment.....		2	2
Nitre compounds.....	2	6	8
Oil, sweet.....	1	1	2
Oil camphorated.....		1	1
Ointment.....		1	1
Paregoric.....	1	1	2
Peppermint, essence of.....	1	1	2
Saccharine.....		1	1
Syrup wild cherry bark.....		1	1
Tonic.....	1	2	3
Tooth remedies.....		1	1
Veronal.....		1	1
Water.....		1	1
Wine, port.....		1	1
Witch hazel.....	1		1
Totals.....	41	61	102

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1917, to June 30, 1918.

Foods and Food Products.

Unofficial.

Material	Legal samples	Illegal samples	Total samples
Beverages	1	1	2
Bread	14		14
Butter	1		1
Cereal	3	5	8
Cheese	3		3
Cocoanut		2	2
Condiments	25	28	53
Confectionery	4	2	6
Oream	1		1
Egg albumin	1		1
Egg substitutes	8	10	18
Egg whites		2	2
Eggs, dried	1	2	3
Extracts	3	1	4
Feed	2	1	3
Fish, canned	17	38	55
Flour	14	4	18
Fruit	3	8	11
Gelatine	6	10	16
Ice cream	2		2
Jelly	3	1	4
Lard	1	1	2
Lard compounds		7	7
Liquors	66	5	71
Meat	5	9	14
Milk	22	4	26
Nuts	11	16	27
Nut compound	1	1	2
Oils, edible	7		7
Olives	2	1	3
Pastry	1	2	3
Salt	2	1	3
Soup	4		4
Spices	10	2	12
Sugar	2		2
Sugar, maple	3		3
Syrup, fountain	1	2	3
Syrup, table	6	1	7
Vegetables	65	123	188
Vegetable compounds	2	2	4
Vinegar	1	2	3
Totals.....	328	294	617

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1917, to June 30, 1918.

Drugs.

Unofficial.

Material	Legal samples	Illegal samples	Total samples
Bay rum	1		1
Court plaster		1	1
Cubebs Po.		1	1
Hair tonic		2	2
Iodine	2		2
Poison (suspected)	1		1
Saccharine	1		1
Totals.....	5	4	9

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1917, to June 30, 1918.

Miscellaneous.

Unofficial.

Material	Legal samples	Illegal samples	Total samples
Apriocot pits		1	1
Oil, lubricating	1		1
Preservative	1		1
Wool	1	1	2
Waste	1		1
Water	12		12
Totals.....	16	2	18

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1917, to June 30, 1918.

Foods and Food Products—Official.

Unofficial.

State Institutions.

Material	Conforming to specifications	Not conforming to specifications	Total
Baking powder	5	1	6
Baking Soda	3		3
Butter	21	24	45
Cereals	11	1	12
Cheese	3	5	8
Chocolate	5	1	6
Coffee	48	4	47
Condiments	16	1	17
Crackers	2	1	3
Cream of tartar	1	2	3
Cream of tartar substitute	4	1	5
Extracts	13	2	15
Feed	20	3	23
Fish	3	2	5
Flour	20	6	33
Fruit	19	2	21
Gelatine	3		3
Jelly	3		3
Lard	2		2
Lard compound	3	1	4
Meat	5	1	6
Milk	1		1
Oil, edible	4	1	5
Pastes, alimentary	8	3	11
Spices	63	16	79
Sugar	3		3
Syrup	14		14
Tea	19	14	33
Vegetables	9	2	11
Vinegar	21	2	23
Totals.....	366	96	452

REPORT OF THE STATE BOARD OF HEALTH.

SUMMARY OF ANALYTICAL WORK—(Continued).

July 1, 1917, to June 30, 1918.

Miscellaneous—Unofficial.

State Institutions.

Material	Conforming to specifications	Not conforming to specifications	Total
Blanket	1		1
Borax	1		1
Calcium acid phosphate	1		1
Cleanser	2	5	7
Colors		1	1
Hair dye		2	2
Linotype metal	1		1
Lye	3		3
Matches		1	1
Oil, lubricating	2		2
Soap	27	8	35
Shoe paste	1		1
Starch, laundry	4		4
Tallow	1		1
Tobacco	2		2
Turpentine	1		1
Varnish	1		1
Totals	48	17	65

SUMMARY OF ANALYTICAL WORK—(Continued).

Foods and Food Products.

Cold Storage.

Material	Number not in violation of California Pure Foods Act	Number in violation of California Pure Foods Act	Total
Cheese	1		1
Peppers	1		1
Eggs	1		1
Eggs, dried	1		1
Fish		1	1
Fruit	1		1
Nuts	14		14
Totals	19	1	20

SUMMARY OF ANALYTICAL WORK.

Year Ending June 30, 1917.

Material	Legal samples	Illegal samples	Total samples
Foods and food products, official	649	979	1,628
Drugs, official	112	98	210
Foods and food products, unofficial	300	196	496
Drugs, unofficial	8	8	16
Miscellaneous, unofficial	11		11
State Institution	1,000	304	1,304
Cold storage	21	62	83
Totals	2,081	1,544	3,625

SUMMARY OF ANALYTICAL WORK.

Year Ending June 30, 1918.

Material	Legal samples	Illegal samples	Total samples
Foods and food products, official.....	688	1,072	1,760
Drugs, official	41	61	102
Foods and food products, unofficial.....	323	294	617
Drugs, unofficial	5	4	9
Miscellaneous, unofficial	16	2	18
State institution	404	113	517
Cold storage	19	1	20
Totals.....	1,496	1,547	3,043

SUMMARY OF ANALYTICAL WORK.

For the Biennial Period.

Material	Legal samples	Illegal samples	Total samples
Foods and food products, official.....	1,337	2,051	3,388
Drugs, official	153	159	312
Foods and food products, unofficial.....	523	490	1,013
Drugs, unofficial	13	12	25
Miscellaneous, unofficial	27	2	29
State institution	1,434	314	1,748
Cold storage	40	63	103
Totals.....	3,527	3,091	6,618

BIENNIAL REPORT OF THE BUREAU OF SOCIAL HYGIENE.

LEWIS MATHESON, M.D., Director.

Origin.

The Bureau of Social Hygiene of the California State Board of Health was established as a war measure, August 13, 1917.

When the control of venereal diseases came to be recognized as a vital necessity in the conduct of the war, a delegation of public spirited men waited upon Governor Stephens with a request for the establishment of a health bureau devoted exclusively to the purpose of preventing the spread of these diseases. The delegation included Mr. Warren Olney, Jr., and Dr. Milbank Johnson of the State Military Welfare Commission, Colonel Lynch, U. S. A., Lieutenant J. E. Miller, U. S. N., and Doctors George E. Ebright and W. A. Sawyer, president and secretary of the State Board of Health.

The Governor agreed with the delegation that there was urgent necessity for such a bureau and appropriated from the military emergency funds thirty thousand dollars a year for two years for its support, thus making California the first state in the Union to attack the problem actively. Since then eleven states have followed her example.

It was agreed that the bureau's main purpose should be to co-operate with the Army and Navy in reducing to a minimum venereal diseases in the soldiers and sailors stationed in the state. To do this, of course, it was necessary to prevent these diseases in the civil population near army and navy posts, and to extend the work as rapidly as possible throughout California.

Functions.

The functions of the bureau were tentatively as follows:

DIRECT CONTROL.

1. To secure the reporting of cases of syphilis and gonococcus infection, together with the probable sources of infection, by physicians and by the medical officers of the army and navy.

2. To investigate, with the assistance of local officials, any suspected foci of infection and to isolate infectious persons whenever it is necessary to prevent their spreading disease.

3. With the co-operation of cities and counties to care for the men and women isolated on account of venereal disease in public isolation hospitals until the patients are no longer infectious.

4. As far as possible to secure the medical examination for venereal diseases of male and female prisoners and other appropriate groups, and to provide for their isolation and treatment so that they will not spread disease when released.

5. Through the operation of this plan to prevent the heretofore common evil of one community "passing on" to another its undesirables, thereby multiplying foci of infection.

6. To focus on this subject the social forces necessary to give former prostitutes, after they have been put into good physical condition, an opportunity to enter into productive occupations under conditions fair to themselves and to the community.

PUBLIC OPPORTUNITIES FOR DIAGNOSIS AND TREATMENT.

1. To investigate all clinics or hospitals treating venereal diseases and to bring into existence adequate day and evening clinics and opportunities for hospital treatment for syphilis and gonorrhea.

2. To make a list of accredited clinics in which venereal diseases are treated, accrediting only those which reach high standards in staffs, equipment and results.

3. To purchase and issue, without charge, to approved public hospitals and clinics, salvarsan or approved substitutes, for use in making cases of syphilis noninfectious in the shortest possible time.

4. To arrange with city laboratories to give free diagnostic tests for syphilis and gonococcus infections, and to encourage the more general use of the free Wassermann tests and other tests available at the Bureau of Communicable Diseases.

EDUCATIONAL.

1. To issue printed pamphlets, cards and placards of information relative to the prevention of venereal disease, and to co-operate with the Army and Navy, and other agencies in giving talks to appropriate groups.

2. To co-operate with the Military Welfare Commission in the suppression of prostitution as the principal source of venereal diseases, but avoiding confusion of the campaign against venereal diseases with the movement against vice as a strictly moral issue.

3. To oppose any local plan for licensing prostitution or issuing certificates of health to prostitutes, by showing that this is in conflict with modern methods of control of venereal diseases, and to substitute the above program, which is entirely consistent with the suppression of prostitution.

Staff.

Dr. W. A. Sawyer, secretary of the State Board of Health, first assumed the duties of director of the bureau and organized the staff. On September 21, 1917, Dr. H. G. Irvine, assistant professor of dermatology, University of Minnesota, accepted the directorship for the period of six months, and was followed by Dr. Lewis Michelson, chief of urological clinic, Leland Stanford Junior University, San Francisco.

Two sanitarians, Dr. Ethel M. Watters and Dr. W. M. Dickie, were appointed. Miss Marian Lynne served as social service director. The six state district health officers, by actively carrying out the bureau's plans calling for the reporting and investigation of cases of venereal disease in their several districts, became, essentially, part of the staff; and co-operation with the U. S. Army and Navy authorities and the Public Health Service, completed a thorough organization.

With the necessary office assistants, offices were opened in San Francisco at 525 Market street. Later, a branch was added in Los Angeles.

Program.

Method of Co-operation with the U. S. Army, U. S. Navy and U. S. Public Health Service. The bureau, having been organized as a war emergency measure, active co-operation with the military and Public

Health Service was one of the first objects to be attained. All cases of venereal disease in the camps are reported to this bureau. Regular reports of the sources of these infections are forwarded to the local health officer, as well as to the bureau. The latter checks up the information to the health officers in the state and also notifies officials of other states, when these sources are discovered to be outside of California. By this procedure many foci of infection have been located.

Lieutenant Allison T. French of the U. S. Army was detailed to California in charge of the Surgeon General Extra-Cantonment office for combating venereal disease and the Law Enforcement Division of the War Departments of the Commission on Training Camp Activities. The aid rendered by Lieutenant French's department in stimulating and enforcing the bureaus' program, has been invaluable. Regular meetings of the California Military Welfare Commission with Lieutenant French and the director of this bureau, have given opportunity for most effective co-operation and have resulted in the carrying out of the bureau's policy to an extent that would otherwise have been impossible.

In many communities bordering on the camps, facilities for isolating venereally infected cases were totally inadequate. With the assistance of the military, state and local authorities every such community has now provided facilities and equipment for this work. To further the War Department's declaration that suppression of prostitution is essential in the control of venereal disease, many meetings of the military, local judiciary, police authorities and representatives of this bureau, have been held. Through these conferences, laws applying to the suppression of prostitution have been invoked and put into operation. In all the communities of California, law enforcement has been actively stimulated.

The different military camps are visited by representatives of the bureau, conferences are held with the medical officers and suggestions are made as to the best methods of achieving control of these diseases. Such conferences have been of mutual benefit.

Medical facilities were meager in the beginning, when the camps were established. Laboratory work was necessarily handicapped. Through the Bureau of Communicable Diseases of California's State Board of Health, laboratory facilities were extended to the posts. Several of them still avail themselves of this privilege.

On the educational side, the bureau has also been of assistance. Lecturers on the subject of venereal diseases have been given to over 70,000 enlisted men, at the request of the Commission on Training Camp Activities, by whom these lecturers have been accredited. At the request of camp commanders, appropriate literature and placards have been placed at their disposal. The stereomotograph of the bureau has been effectively employed in giving exhibitions at the different camps. Military and federal authorities have reciprocated by keeping the bureau informed on matters of importance and by forwarding all their publications bearing on this subject.

Control.

Special Bulletin No. 24 on Regulations for the Prevention of Syphilis and Gonococcus Infections was adopted October 6, 1917, and amended March 2, 1918.

Reporting of Cases. In order to successfully attack a disease, there must be data bearing on its prevalence, its favored localities, and its carriers. Reporting of syphilis and gonorrhea by numbers (not by names) had been made compulsory under paragraph 2979a of the Political Code of California, but had not been strictly enforced. Under section 13 of the Public Health Act violation of this rule is a misdemeanor. At first, physicians were required to report cases by their personal history number; later, the serial number of the bureau was substituted. But in case a patient requiring medical aid for these diseases discontinues treatment and fails to report to a physician for a period of more than ten days, his (or her) name is sent to the Bureau of Social Hygiene. Investigation follows, usually through the local health officer, and suitable treatment is made obligatory.

To avoid duplicate reporting and the possibility of a patient's name being unjustly reported, physicians treating a case are required to inquire from and ascertain whether such person had theretofore consulted with or been treated by any other physician; and if so, to notify that physician that his former patient is continuing treatment. It shall be the duty of the applicant for treatment to furnish this information, and a refusal to do so, or falsely stating the name and address of such physician or person consulted, shall be deemed a violation of quarantine, and all the facts of the case, including the number, name and address of the patient, shall be reported to the State Board of Health by the physician or other person so consulted.

It shall be the duty of the physician or person consulted, in case the applicant has heretofore received treatment, to immediately notify, on a card supplied for the purpose, the physician or person last theretofore treating such applicant of the change of adviser. Should the physician or person previously consulted fail to receive such notice within ten (10) days after the time appointed for the appearance of such diseased person, the said diseased person shall be deemed to have violated quarantine, and it shall at once become the duty of such physician or person to report to the State Board of Health the name and address of such diseased person.

Following are facsimiles of the cards issued by the bureau for the reporting of these conditions:

No.-----

REMEMBER THIS NUMBER AND FOLLOW INSTRUCTIONS

You are given this pamphlet of instructions with this serial number by your doctor because the law required him to do so and to report your case to the Health Officer by this number **WITHOUT REVEALING YOUR NAME.**

If you change doctors for any reason and wish to keep your name concealed you must see to it that the doctor you last consult notifies the doctor previously having charge of your case within **TEN DAYS** (10 days).

If you fail to come for treatment at the time ordered by your doctor within the period in which your disease is infective and he does not receive notice within **TEN DAYS** from another doctor, stating that you have placed yourself under his professional care, the doctor giving

you this pamphlet is obliged by law to report your NAME AND ADDRESS to the health authorities as a person suffering from a disease dangerous to the public health and presumably not under proper medical advice and care sufficient to protect others from infection. You will then be liable to quarantine or such other procedure as the Board of Health may determine. If you want your name kept secret, follow these instructions carefully. Your doctor will tell you when your case is no longer infectious.

No. _____

CARD A

PHYSICIAN'S REPORT OF CASE OF GONORRHEA OR SYPHILIS

Strike out gonorrhea or syphilis as case may be

Make the Serial Number a Part of Your Case Record

Date _____ 19____ City or town _____ Cal.

Age _____ Sex _____ Color _____ Marital relation _____
Single, married, widowed, divorced

Occupation _____ Date of infection _____

Source of infection _____

Commercial or clandestine prostitute—Address if investigation is indicated

Was patient intoxicated at time of exposure? _____ Unemployed _____

Is patient in infectious state of disease? _____ If so, is patient likely to infect others? _____

Has this case been previously reported? _____ Under what number? _____

Has diagnosis been confirmed by laboratory test? _____

Wassermann, smear for gonococci or spirochete

_____ M. D.

Address _____

Mail this card immediately to the State Board of Health, Sacramento, and in addition report the case by number to your local Health Officer.

CARD B

Form for Reporting Change of Physician.

Date _____ 19____
_____ Cal.

DEAR DOCTOR:

In accordance with Section 8 of the regulation of the California State Board of Health governing venereal disease control I herewith notify

CARD C

you that _____ of _____

Name of patient

Address

reported by you as number _____ and formerly under your treatment is now under my care and _____ name and address need not

His or her

be reported to the health authorities as provided for according to this regulation.

Respectfully yours,

_____ M. D.

Address _____

Form for Reporting Patient as Dangerous to Public Health

Cal.

City or town

19

BUREAU OF VENEREAL DISEASES, STATE BOARD OF HEALTH
525 Market Street, San Francisco, Cal.

Gentlemen:

This is to notify you that _____

Name of patient (Serial No.)

of _____ has not reported to me within ten (10)

Address

days of time appointed, nor have I received any notification that _____

He or she

is under the care of any other physician. In accordance with Section
8 of the regulations of the State Board of Health governing venereal
diseases I am therefore reporting _____ name and address.

His or her

Respectfully yours,

M. D.

Address

Instructions to the patient.

It shall be the duty of the physician in attendance on a person having syphilis or gonococcus infection, or suspected of having syphilis or gonococcus infection, to instruct him in precautionary measures for preventing the spread of the disease, the seriousness of the disease, and the necessity for prolonged treatment, and the physician shall, in addition, furnish approved literature on these subjects.

NOTE 1.—Approved literature for distribution to patients may be secured from the Bureau of Venereal Diseases of the State Board of Health, 525 Market street, San Francisco.

NOTE 2.—The following instructions are required as a minimum by Rule 2:

(a) To patients having syphilis:

1. Syphilis or pox is a contagious disease. It can usually be cured, but it requires two or more years of treatment.
2. You must not marry until a reputable physician has pronounced you cured.
3. Avoid all sexual relations.
4. Always sleep alone.
5. Do not kiss anyone.
6. Never permit anyone to use anything which has been in your mouth, such as toothpicks, toothbrushes, pipes, cigars, pencils, spoons, forks, cups, etc., or anything else that you have contaminated.
7. If you have to see a dentist, tell him about your disease before he examines your teeth.
8. Avoid patent medicines, so-called "medical institutes" and advertising "specialists."
9. Consult a reputable physician, or, in case of financial inability, the city or county physician, or a reputable dispensary such as is found in connection with most large public hospitals, and follow directions absolutely.

(b) To patients having gonorrhea:

1. Gonorrhea, "clap," or gleet, is a serious contagious disease. If properly treated it can usually be cured.
2. You must not marry until a reputable physician has pronounced you cured.
3. Avoid all sexual relations.
4. Always sleep alone, and be sure that no one uses your toilet articles, particularly your towels and wash cloths.
5. Always wash your hands thoroughly after handling the diseased parts. The discharge, if carried to your eyes, may cause blindness.
6. Avoid patent medicines, so-called "medical institutes" and advertising "specialists."
7. Consult a reputable physician, or, if financially unable to do so, the city or county physician, or a reputable dispensary such as is found in connection with most large public hospitals, and follow directions absolutely.

NOTE 3.—If any person has knowledge that a person infected with syphilis or gonococcus infection is failing to observe adequate precautions to prevent spreading infection, he shall report the facts at once to the local health officer.

Health officers designated inspectors.

All city, county and other local health officers are, for the purpose of the control and suppression of venereal diseases, hereby designated and appointed inspectors, without salary, of the State Board of Health of California, under the provisions of section 2979 of the Political Code.

NOTE 1.—The following paragraph is quoted from section 2979 of the Political Code:

"It (the State Board of Health) shall have general power of inspection, examination, quarantine and disinfection of persons, places and things, within the state, and for the purpose of conducting the same may appoint inspectors, who, under the direction of the board, shall be vested with like powers; *provided*, that this act shall in no wise conflict with the national quarantine laws."

Investigation and control of cases.

All city, county and other local health officers are hereby directed to use every available means to ascertain the existence of, and immediately to investigate, all reported or suspected cases of syphilis in the infectious stages and gonococcus infection within their several territorial jurisdictions, and to ascertain the sources of such infections.

In such investigations said health officers are hereby vested with full powers of inspection and examination, of all persons, places and things, and as such inspectors said local health officers are hereby directed:

(a) To make examinations of persons reasonably suspected of having syphilis in the infectious stages or gonococcus infection. (Owing to the prevalence of such diseases among prostitutes, all such persons may be considered within the above class.)

(b) To isolate such persons whenever, in the opinion of the secretary of the State Board of Health, isolation is necessary to protect public health. In establishing isolation the health officer shall define the limits of the area in which the person reasonably suspected or known to have syphilis or gonococcus infections and his immediate attendant, are to be isolated, and no persons, other than the attending physicians, shall enter or leave the area of isolation without the permission of the health officer.

(c) In making examinations and inspections of women for the purpose of ascertaining the existence of syphilis or gonococcus infection, to appoint women physicians for said purposes where the services of a woman physician are requested or demanded by the person examined.

(d) In cases of quarantine or isolation, not to terminate said quarantine or isolation until the cases have become noninfectious or until permission has been given by the State Board of Health or its secretary.

Cases of gonococcus infection are to be regarded as infectious until at least two successive smears taken not less than 48 hours apart fail to show gonococci.

Cases of syphilis shall be regarded as infectious until all lesions of the skin or mucous membranes are completely healed.

(e) Inasmuch as prostitution is the most prolific source of syphilis and gonococcus infection, all health officers are directed to use every proper means of repressing the same, and not to issue certificates of freedom from venereal diseases, as such certificates may be used for purposes of solicitation.

(f) To keep all records pertaining to said inspections and examinations in files not open to public inspection, and to make every reasonable effort to keep secret the identity of those affected by venereal disease control measures as far as may be consistent with the protection of the public health.

Report of unusual prevalence.

When the local health officer, through investigation, becomes aware of unusual prevalence of syphilis or gonococcus infection, or of unusual local conditions favoring the spread of these diseases, he shall report the facts at once to the Bureau of Venereal Diseases, 525 Market street, San Francisco.

Quarantine.

Any person now under treatment, or who shall hereinafter present himself (or herself) to any physician or person for treatment or diagnosis of any venereal disease, shall be considered to be in quarantine. The requirements of quarantine shall be considered fulfilled when the patient is reported by serial number, as provided for in Note 1 of Rule 1, and as long as he (or she) remains under the observation of any one licensed under the laws of California to treat disease.

Control of prostitutes.

Special procedures have been made necessary to insure treatment for the principal carrier of venereal disease—the prostitute, and to prevent the plying of their trade by women who have been declared infectious. A health officer has the power to quarantine a case which he has reasonable suspicion to believe is a carrier of a communicable disease. As from 70 to 80 per cent of all prostitutes have been found infected with venereal disease, a reasonable suspicion is justified. These women are arrested, charged with some act involving moral turpitude, usually vagrancy. The health officer declares them quarantined, thus preventing their being bailed out and so defeating the purpose for which they are being detained. Those found infected are held for treatment, and the noninfected returned to the legal authorities. The type of quarantine being regulated by the local health officers, the manner of carrying out the same has varied according to the facilities of communities to handle such cases. In all health departments the gonorrheal cases are held until, as far as clinical and microscopic tests can show, the cases are cured. With syphilitics, all are held until they are noninfectious and in many health departments, until the Wassermann reaction is negative. In some localities after the cases have been rendered noninfectious, they have been returned to the courts and released on their own recognition, being required to bring a report every month from the private physician treating them. There have been very few attempts by those arrested to evade the quarantine proceedings. Eight attempts to obtain a writ of habeas corpus have failed and the patient has been remanded to the custody of the health officer by the courts. In San Jose the health officer quarantined a case that he regarded as reasonably suspicious, although no charge had been lodged by the police. The city manager, chief of police and city health officer were sued for false imprisonment but the case was immediately dismissed.

Until the above method was followed, arrest of women delinquents resulted in their immediately giving a hundred dollar bond bail. This bond was almost invariably forfeited. If it was not forfeited, the effect was almost as disastrous in the spread of venereal disease, for while out on bail, the offender continued to practice prostitution. This was the case in large cities. In smaller communities formerly, suppression of prostitution was accomplished by closing houses of ill-fame and ordering their inmates out of town. There was no attempt made to examine these women to detect disease; they were simply “floated” to some other community, their problem shouldered on to a neighboring town.

Examination of persons arrested for crimes involving moral turpitude.

Most of the cities have failed to report the data from such cases, but San Francisco, Los Angeles and San Diego give the following:

The San Francisco Health Department reports the total number of women examined at the county jail from August 29, 1917, to September 1, 1918, as 1,225; 248 infected with gonorrhea, 402 with syphilis, and 2 with chancroids. Approximately 53 per cent out of those examined. Of the 96 men arrested with the women four presented evidences of gonorrhea and nine of syphilis. The low number of men examined was

due to the fact that in the examination of the women the percentage of infection is lower than in the examination of the men. The low percentage of infection in the women is due to the fact that the women are more likely to be examined than the men. One may contrast the results of the examination of the Men's Department, East Side Jail of Los Angeles where in 1925 prisoners examined, 12 were found infected with gonorrhea and 38 with syphilis 37 per cent infected.

At the Mission Valley Hospital out of 122 women examined 14 showed syphilis only, 17 gonorrhea only, 10 both syphilis and gonorrhea approximately 39 per cent.

The Women's City Jail in Los Angeles shows from March 1, 1917 to July 1, 1918, out of 257 women examined there were:

50 infected with syphilis

105 infected with gonorrhea.

67 infected with both gonorrhea and syphilis (approximately 50 per cent).

The wide variance in the percentage of women found infected must be looked for in the different methods of examination, as well as the personal opinions of the clinicians. Many of them basing their diagnosis on the clinical aspect as well as the laboratory findings, while the examiners with very little practical experience require a positive laboratory finding. This is an important point, as there is no doubt that a large percentage of cases with negative laboratory evidences, give clinical symptoms that should make for a positive diagnosis.

Increased facilities for diagnosis and treatment.

Laboratory. Through the Bureau of Communicable Diseases of the State Board of Health, laboratory facilities are offered free for all tests necessary for the diagnosis of venereal diseases. This aid has proved of immense value, as, excepting in the largest cities, laboratory facilities are exceedingly meager. Laboratory examinations have been brought within the reach also of private practitioners, and have not only helped in the diagnosis of cases, but have stimulated the physician to develop a more scientific knowledge of venereal diseases.

Direct aid from medical staff of the bureau.

The special knowledge of the medical staff, as well as its experience with all manifestations of this complex question, has been placed at the disposal of health departments and practicing physicians. In many communities the experience of the local medical authorities in venereal diseases has been extremely limited and, as a consequence, organization of proper diagnostic and treatment facilities has been handicapped. Members of the medical staff have continually assisted in the organization, as well as in the actual examination and treatment of cases.

Approved dispensaries and hospitals.

In order to bring up the standards of some of the existing dispensaries and hospitals treating venereal disease, to encourage the formation of additional public dispensaries, and to assist persons needing institutional treatment to ascertain which institutions have adequate staffs and equipment and standards, the bureau has temporarily accredited certain clinics and hospitals, a list of which is appended. Arsephenamine is issued only to clinics and hospitals approved by the State Board of Health.

STANDARDS GOVERNING THE APPROVAL OF DISPENSARIES AND HOSPITALS TREATING VENEREAL DISEASES.**Dispensaries treating syphilis.**

1. **Special Department:** Syphilis shall be treated in a special department or the Department of Dermatology.
2. **Number of Sessions:** The dispensaries shall be open at least three times a week, day or evening.
3. **Staff:** The staff shall be adequate in number and training.
4. **Equipment:** Enough well-arranged rooms, laboratory facilities and equipment, with instruments and apparatus, shall be provided.
5. **Beds:** Every dispensary shall have at its disposal beds for isolation or treatment.
6. **Records:** Adequate records of all cases shall be kept.
7. **Social Service Required:** A social service department shall be maintained and adequate measures adopted to secure a regular attendance of patients.
8. **Information to Patients:** Clinicians shall devote the amount of time necessary for intelligently informing new patients of the seriousness of their disease, the necessity for prolonged treatment, and the precautions necessary, to prevent the spread of infection to others, and the clinics shall, in addition, furnish approved literature on these subjects. (This literature can be secured from the Bureau of Venereal Diseases.)
9. **Microscopic Examinations:** Microscopic examinations of suspected initial lesions shall be made.
10. **Wassermann Tests:** Wassermann tests shall be performed in the dispensary laboratory or other approved laboratory.
11. **Administration of Salvarsan or Equivalents:** Salvarsan or accepted equivalents shall be administered to all cases where there are no contraindications. (Salvarsan or approved substitutes may be obtained without cost from the Bureau of Venereal Diseases, 525 Market street, San Francisco, for the treatment of infectious cases of syphilis in approved dispensaries.)
12. **Procedure Covering the Discharge of Patients:** Suitable tests and observations shall be made of all patients for a period of not less than two years after the conclusion of adequate treatment. (See pamphlet, "Modern Treatment of Syphilis," obtainable from the Bureau of Venereal Diseases.)
13. **Transfer of Patients:** If it becomes necessary for any reason to discharge a patient still uncured, the patient shall be referred to an approved dispensary or a reputable physician.
14. **Annual Report:** An annual report of work done in the dispensary shall be made. It is suggested that this include the number of new and old patients and number of visits made, the number of patients continued under observation and treatment from one year into the next, the number of doses of salvarsan or equivalent administered (with a separate list of free doses), and the number of patients discharged as cured.

Dispensaries treating gonorrhea.

1. **Number of Sessions:** Dispensaries shall be open at least three times a week, day or evening.
2. **Staff:** The staff shall be adequate in number and training.
3. **Equipment:** Enough well-arranged rooms, laboratory facilities and equipment, with instruments and apparatus, shall be provided.
4. **Beds:** Every dispensary shall have at its disposal beds for isolation or treatment.
5. **Records:** Adequate records of all cases shall be kept.
6. **Social Service Required:** A social service department shall be maintained and adequate measures adopted to secure a regular attendance of patients.
7. **Information to Patients:** Clinicians shall devote the amount of time necessary for intelligently informing new patients of the seriousness of their disease, the necessity of treatment until cured, and the precautions necessary to prevent the spread of infection to others, and the clinic shall, in addition, furnish approved literature on these subjects. (This literature can be secured from the Bureau of Venereal Diseases.)
8. **Microscopic Examination:** Systematic microscopic examination of discharges shall be made in departments treating patients affected with gonorrhea.

9. Facilities for Asepsis and Antisepsis: All departments treating patients affected with gonorrhea shall be equipped with adequate facilities for asepsis and antisepsis.

10. Urethroscopic and Cystoscopic Examination: Facilities for urethroscopic and cystoscopic examination shall be provided and regularly employed by the attending clinicians.

11. Procedure Governing Discharge of Patients: Patients shall be discharged as cured only after repeated negative clinical and microscopic examinations.

12. Transfer of Patients: If it becomes necessary for any reason to discharge a patient still uncured, the patient shall be referred to an approved clinic or reputable physician.

13. Annual Report: An annual report of work done in the dispensary shall be made. It is suggested that this include the number of new and old patients, the number of visits made, the number of patients continued under observation and treatment from one year into the next, and the number of patients discharged as cured.

Hospitals treating syphilis and gonorrhea.

1. No Discrimination Against Venereal Diseases: Patients having venereal diseases must be accepted under the same conditions as other patients.

2. General Standard of Hospital: The hospital shall be properly equipped and well conducted.

3. Staff and Equipment: There shall be adequate staff and equipment for the diagnosis, treatment and keeping of records in cases of syphilis or gonococcus infection in general accord with the standards indicated for approved dispensaries.

4. Follow-up: Social service and follow-up work shall be carried on as indicated for approved dispensaries, either by the hospital or by an approved dispensary to which patients are transferred.

Hospital and clinical facilities increased.

Practically all public hospitals have hitherto refused to take venereal cases except when bedridden. This attitude has not only prevented treatment at the time when cure is most possible and when it could be most speedily accomplished, and when the case is acutely infectious, but it has added to financial cost by requiring prolonged care in chronic and incurable cases. The bureau has conducted an active campaign against this attitude and at present all public hospitals will accept cases upon the recommendation of the health officers. Many counties have made provisions for special wards where isolation can be carried out; notably:

- (a) Los Feliz Hospital, Los Angeles (infected prostitutes).
- (b) Mission Valley Hospital, San Diego (infected prostitutes).
- (c) Riverside Hospital, Riverside (infected prostitutes).
- (d) Special wing at Bakersfield County Hospital (both men and women).
- (e) Ward L, San Francisco Hospital (infected women).
- (f) Sacramento Detention Hospital, Sacramento.
- (g) Many other county hospitals isolate these cases but have not provided special wards.

Throughout the state, clinical facilities are totally inadequate for the treatment of venereal diseased indigents. This has been one of the very difficult problems the bureau has had to deal with. Most of the clinics in the largest cities are not easily accessible, and with the exception of the Los Angeles City Clinic, no provisions are made for treatment at night. The smaller cities and towns have either no clinics or those which have been established have not a proper staff or equipment. Although the establishment of clinics has been rendered extremely difficult, by lack of local funds (a loss of revenue in several places, through prohibition) and lack of physicians, a practical beginning has been made by arranging for the treatment of these cases with the

health officers or county physicians. Several of the cities have agreed to provide for the cost of clinics in next year's budget. Owing to the disorganization in the medical profession, due to the war, hospitals and clinics have, with few exceptions, been unable to fulfill the standard required by the State Board of Health. The following have temporarily been accredited:

Berkeley Dispensary, Berkeley.
Children's Hospital, San Francisco.
College of Physicians and Surgeons, San Francisco.
Fresno County Hospital.
Los Angeles County Hospital.
Los Angeles County Jail Clinic.
Los Feliz Hospital, Los Angeles.
Los Angeles Juvenile Hospital.
Genito-urinary Clinic, Los Angeles.
Mission Valley Hospital, San Diego.
Oakland College of Medicine, Oakland.
Sacramento City Dispensary and Receiving Hospital.
Santa Barbara Cottage Hospital.
San Francisco Hospital.
San Francisco Polyclinic.
Selwyn Emmett Graves Memorial Dispensary, Los Angeles.
Stanford University Clinic, San Francisco.
University of California Hospital, San Francisco.
Juvenile Detention Home, San Francisco.
Fresno City Clinic.
Pasadena Hospital Association.
University of Southern California Clinic, Los Angeles.
Boyle Heights Dispensary, Los Angeles.
Orange County Hospital.

Free arsephenamine.

In the modern treatment of syphilis, arsephenamine ranks first. Before the war this drug had been so expensive as to place it beyond the reach of many unfortunates whose needs were urgent. Since the war the cost has been reduced to much less than half, but it is still beyond the reach of many. The bureau issues arsephenamine free to health officers and approved hospitals and clinics for use in indigent cases. At first it was issued only to infectious cases of syphilis, but later a more liberal policy has been adopted, and now to practically all stages of syphilis this relief is afforded. For cerebrospinal cases arsephenamine is issued only to those institutions having the highly trained staff necessary for scientific treatment of such cases. Arsephenamine is issued only upon the receipt of a special requisition form of the bureau. A treatment card showing details of the case before and during treatment must be returned for each ampoule. In spite of the fact that this treatment has been carried out by physicians, some of them deficient in experience in this line, there have been very few severe reactions (not over fifty) and not one death has occurred. In 95 per cent of the cases the gravity method has been used with 90-100 c.c. of distilled water. In several institutions it was found that the severe reactions were occasioned by the use of distilled water purchased from druggists or from that which had been on hand for several days. When freshly distilled water was used marked reactions were practically eliminated. Up to July 1, 1918, 2,862 ampoules of arsephenamine have been issued to health officers, clinics and hospitals.

Educational measures.

In addition to the various measures already enumerated which in themselves have educational value, the bureau has undertaken a system of popular instruction, which includes lectures on venereal diseases and sex hygiene. Forty-eight lectures have been given to the colored men in camps. Twenty-one lectures have been given to civilian groups. Sets of posters from the American Social Hygiene Society and the Oregon Social Hygiene Society have been exhibited, as well as posters worked out by this bureau and designed by Mr. Roy Young. The stereomicrograph has been shown at several military camps, as well as to civilian groups. Placards on venereal diseases for latrines and public places, as well as pamphlets, have been prepared by the Bureau and issued free of cost. A list of these is given in the summary.

Suppression of prostitution.

No program for the control of venereal disease can be complete which lacks measures directed to the elimination of the principal cause of these maladies—prostitution. In addition to the procedure already outlined, the bureau has been most active in co-operating with the authorities whose duty is the suppression of prostitution. In communities in which a segregated district has been tolerated, the attention of agencies dealing with the prostitute has been directed to the necessity of no longer permitting this state of affairs. When this has not availed, an aggressive campaign has been instituted to bring pressure to bear upon delinquent officials. This has been effected through public spirited citizens, civic clubs, and, in many cases, the influence of the War Department, and of the State Military Welfare Commission has been invoked. A great deal has been accomplished along this line by the social service workers' personal appeal to individual citizens and especially to women's clubs. At present throughout the state, with the exception of a few isolated communities, there are no open houses of ill fame.

To a lesser extent cities and towns have, with varying degrees of success, suppressed the clandestine prostitute, as well. One of the most difficult problems has been that of dealing with willful young girls, who may not be classed as wholly delinquent, yet who require upbuilding, disciplinary, moral assistance. Probation officers, policewomen, and social service workers have been appointed for this work. This may well be regarded as one of the most essential points in preventive medicine.

Any local plan that has for its object the issuing of certificates of health to prostitutes has been most actively combated, the fallacy of such a proceeding being now well recognized.

Rehabilitation of prostitutes.

The cure for venereal disease in communities is in part physical and in part social. Each consecutive link in the chain forged by experienced handling of this grave menace to public health is an essential one. There must be first, direct treatment of the disease; second, law-enforcement; third, education; fourth, rehabilitation of delinquent

old problem, is of course the most difficult. But not include this is foredoomed to failure. If the

diseased woman is merely treated, given a jail sentence and, at the expiration of the same, turned loose, it will only result in her again resuming her trade (probably to command a higher price, as she can assure her patrons that she has been through a course of treatment at a scientific institution. This has been known to occur in not a few cases). Inevitably she will again become infected; her erring feet will once more be set to tread in the old vicious circle which holds no hope of betterment, either for her or for the health of the community. Her history will be a perpetual recurring arrest—cure—relapse; the feeble, wasteful way that has so long been tried with her and found wanting.

The bureau is advocating the establishment of one or more detention homes, preferably located on a farm, with a competent psychologist, on its managerial staff. Suitable vocational teachers should be provided so that when the woman is returned to the community, after detention, instead of leading a parasitical existence, she will be economically independent. It is planned to have the proper measures introduced at the next meeting of the legislature to provide for such institutions. Many women's clubs, as well as the Women's Legislative Council, are backing these measures. Los Angeles has already promised an appropriation of \$50,000 for a detention farm near the city.

Increase of facilities for the care of the mental deficient.

Approximately from 20 to 30 per cent of prostitutes are mentally deficient and should have permanent custodial care. In institutions for the feeble-minded accommodations and facilities for the care of such cases fall short by at least fifty per cent. It is absolutely essential to the right solution of this great problem that these institutions double their capacity at least.

Progress in various communities.

Los Angeles—City.

Los Feliz Hospital opened January 29, 1918. It is equipped to care for 51 patients. Women who are venereally diseased, or who have formed drug or liquor habits. The maintenance of an evening clinic, bacteriological examinations. All these costing approximately \$25,000.

The opening of a detention home for the rehabilitation of prostitutes is contemplated.

County.

The county maintains a Juvenile Hall Clinic and has surveyed the county jails, costing approximately \$5,500.

San Francisco.

Ward L, at San Francisco Hospital, opened August 15, 1917, for the treatment of women infected with venereal disease; diagnostic clinic supervised by a gynecologist, an assistant and a nurse, at \$2,000 per month. Total cost, approximately \$23,000.

Clinics in three county jails for the diagnosis and treatment of venereal disease, approximately \$1,000.

Clinics for the treatment and diagnosis of venereal diseases opened in each of the five emergency hospitals; no estimate of cost.

Clinic at the Juvenile Detention Home for the diagnosis, treatment and isolation of wards of the Juvenile Court, infected with venereal disease; no estimate of cost.

Laboratory work (Wassermann tests and slide examinations); no estimate of cost.

During 1918-1919, the San Francisco Hospital budget carries an appropriation of \$20,000 for the maintenance of Ward L and one of \$3,600 for the salaries of a bacteriologist and mental examiner.

Fifteen thousand dollars has just been appropriated for the renovation of the old Isolation Hospital for the care of patients with venereal disease. Operative cases will be held in Ward L.

This does not include the maintenance of this hospital. It will accommodate over 100 women.

Examination and treatment of male prisoners in city and county jails.

San Diego.

Erection of Mission Valley Hospital. Original cost \$10,000; equipment \$4,000; maintenance, \$5,500. Total cost, approximately \$19,500.

Alameda County.

Patients isolated and treated in the Alameda County Hospital; no estimate of cost.

Oakland.

Isolation and treatment of patients in the city jail; no estimate of cost.

Fresno County—City.

Establishment, equipping and maintaining a clinic for the diagnosis and treatment of venereal disease, together with bacteriological examinations, an appropriation of \$3,000.

County.

A clinic is maintained at the county hospital; a social service nurse, at a salary of \$125 per month, is employed and patients are isolated in the county hospital; no estimate of cost.

Kern County.

Establishment of a ward at the county hospital for the treatment of venereal disease; employment of a physician; \$8,000.

Monterey County.

Patients isolated and treated in the Monterey County Hospital; no estimate of cost.

Nevada County.

Patients isolated and treated in the Nevada County Hospital; no estimate of cost.

Placer County.

Patients isolated and treated in the Placer County Hospital; no estimate of cost.

Riverside County.

Cost of the venereal disease eradication has been estimated at \$3,000.

San Mateo County Hospital.

Patients isolated and treated in the San Mateo County Hospital; no estimate of cost.

Redwood City: A building has been renovated and furnished for the care and treatment of isolated venereally diseased women "camp followers" at Camp Fremont; no estimate of cost.

Menlo Park: The establishment of a venereal disease clinic.

Sacramento County.

Patients isolated and treated in the Sacramento County Hospital; no estimate of cost.

Sacramento: Clinic in city jail for diagnosis and treatment; employment of social service worker at \$125 a month; no estimate of cost.

The opening of detention hospital for the treatment of venereal disease patients.

San Joaquin County.

Patients isolated and treated in the San Joaquin County Hospital; no estimate of cost.

Santa Clara County.

At the county hospital venereally diseased patients are isolated and treated; bacteriological examinations made by the health department at San Jose; no estimate of cost.

Santa Barbara County.

New isolation hospital, part of which will be used for venereal disease work, estimated cost, \$7,500.

Shasta County.

Patients isolated and treated in the Shasta County Hospital; no estimate of cost.

This does not include the cost of any of the repressive measures against prostitution, nor does it include the money spent by the bureau.

CASES OF VENEREAL DISEASES REPORTED TO STATE BOARD OF HEALTH.**Gonorrhea.**

Month	1916	1917	1917	1918	1918
July	76		200		725
August	95		322		573
September	87		319		442
October	49		304		492
November	93		576		
December	50		351		
January		209		231	
February		112		254	
March		120		356	
April		166		301	
May		176		504	
June		151		390	
Totals	450	984	2,073	2,086	2,232
Army			14	592	652
Navy	77	12	322	276	214
Civilian	373	922	1,736	1,198	1,366

Syphilis.

Month	1916	1917	1917	1918	1918
July	118		114		403
August	114		142		291
September	98		143		423
October	159		170		281
November	134		212		
December	114		255		
January		178		239	
February		123		214	
March		113		326	
April		137		220	
May		131		252	
June		79		191	
Totals	737	761	1,066	1,442	1,398
Army				194	162
Navy	114	5	73	75	38
Civilian	623	756	963	1,173	1,198

Arsenobenzol Report for the Year Beginning August, 1917, and Ending June 30, 1918.

Number of ampoules of arsenobenzol and its health officers and approved dispensaries

San Francisco Health Department.....	740
Los Angeles City Health Department.....	547
Los Angeles County Health Department.....	200
San Diego Health Department.....	260
Fresno County Hospital.....	176
Santa Clara County Health Department.....	31
Kern County Health Officer.....	124
Stanford University Clinic.....	103
San Diego County Hospital.....	100
University of California Clinic.....	70
San Bernardino County Health Officer.....	42
San Francisco Polyclinic.....	22
Nevada County Health Department.....	22
Cottage Hospital, Santa Barbara.....	20
Fresno City Clinic.....	21
Edwyn Graves Memorial Dispensary.....	20
Sacramento Health Department.....	40
Oakland College of Medicine and Surgery.....	18
San Francisco Juvenile Detention Home.....	14
Children's Hospital, San Francisco.....	12
Oakland Health Department.....	12
Shasta County Health Officer.....	12
Monterey County Hospital.....	9
San Mateo County Health Officer.....	9
Contra Costa County Health Officer.....	6
Stanislaus County Hospital.....	6
Berkeley Dispensary.....	4
San Francisco College of Physicians and Surgeons.....	3
Santa Cruz County Health Officer.....	3
Tulare County Health Officer.....	3
Yuba County Health Officer.....	3
Hickory County Health Officer.....	3
Irrington Health Officer.....	3
Kings County Hospital.....	2
Sonoma County Health Officer.....	1
Total number.....	2,956

Treatment Reports Received.

250 patients received one dose.....	250
157 patients received two doses.....	314
154 patients received three doses.....	462
82 patients received four doses.....	328
37 patients received five doses.....	185
20 patients received six doses.....	120
7 patients received seven doses.....	49
7 patients received eight doses.....	56
4 patients received nine doses.....	36
1 patient received eleven doses.....	11

719

Ampoules spoiled for various reasons.....

1,811

22

1,833

Occupations of Patients receiving Arsenobenzol from the Bureau.

Children.....	53
Housewives.....	100
No occupation.....	118
Laborers.....	122
Prostitutes.....	147
All other occupations.....	179

719

Females..... 417
Males..... 302

719

**REPORT OF ARSENOBENZOL EXPENDITURE FROM SEPTEMBER, 1917, TO
JULY 1, 1918.**

Month	0.6 gms.	Price	Total cost	0.4 gms.	Price	Total cost
September and October....	200	\$2 50	\$500 00	43	\$2 50	\$94 60
November	40	2 50	100 00	6	2 20	13 20
November	53	1 50	81 50			
December	178	1 50	267 00			
January	248	1 50	372 00			
February	1	1 50	1 50	199	95	189 05
February	273	1 15	313 95			
March	344	1 15	395 60	100	95	95 00
April	173	1 15	198 95	124	95	117 80
May	185	1 15	212 75	302	95	343 90
June	99	1 15	113 85	243	95	222 30
Totals.....	1,794		\$2,557 10	1,077		\$1,075 85
1,794, 0.6 gms., arsenobenzol, cost.....						\$2,557 10
1,077 0.4 gms., arsenobenzol, cost.....						1,075 85
Total cost.....						\$3,632 95

REPORT OF BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

The usual statistical tables on births, deaths and marriages such as have appeared in preceding biennial reports are presented on pages following, for the calendar years 1917 and 1916. In the interest of economy there has been some condensation of material, in the omission of partial duplication of data in former tables for geographic divisions or groups of counties, but with the retention for the sake of reference of complete data for the whole 58 counties as well as for the 31 leading cities (of 5,000 population in 1910).

A new section on infant mortality, a subject of fresh and growing interest, is included among the vital statistics tables, previously limited to general summary, births, deaths and marriages. Additional data on infant mortality besides the tables here shown may appear in subsequent biennial reports.

With the condensation of statistical tables it has also been necessary to omit the extensive text discussion given in former reports, though the points noted in such discussions have varied relatively little year after year. However, a brief synopsis of statistics for 1917 and 1916 is presented herewith, arranged under the same topical headings used in the grouping of the statistical tables. This synopsis directs attention to the most interesting points shown in the tables.

The list of statistical tables, shown under Contents, will facilitate reference to detailed data available among the statistical compilations.

SYNOPSIS OF STATISTICS: 1917 AND 1914.*

I. Summary.

The California birth total has much more than doubled since the first year's registration of 20,974 for 1906, having risen steadily to 50,638 in 1916 and 52,230 in 1917.

The excess of births over deaths first shown in 1911 was as great as 10,146, or 24.1 per cent.

The death total, exclusive of stillbirths, has oscillated slightly since the start at 29,303 in 1906, being 39,860 in 1916 and 42,084 in 1917.

The marriages have fluctuated greatly from the total of 21,317 for 1906, numbering 30,996 for 1916 and as many as 36,283 for 1917.

In 1916 to 1917, births increased by 1,592, or 3.1 per cent, deaths by 2,224, or 5.6 per cent, and marriages by 5,287, or 17.1 per cent. The gain in marriages was the greatest annual increase since 1906.

The birth rate has grown steadily ever since 1906, while the death and marriage rates each fell at times in the twelve-year period.

For 1917 and 1916, respectively, the California birth rates per 1,000 population were 17.2 each year, the death rates were 13.9 and 13.5, and the marriage rates were 11.9 and 10.5. The latest birth rates mark the

*NOTE.—The vital statistics are presented for calendar, instead of fiscal years, to correspond with the annual mortality reports of the Federal Census Bureau.

highest points attained since 1906, but the death rates for 1917 and 1916, like those for several other years, stand below the high rates for 1912 and 1913 or for 1906 to 1908. The marriage rate for 1917 approaches the maximum for 1912, while the rate for 1916 was the same as for 1906.

STATISTICAL TABLES.

NOTE.—The vital statistics are presented for calendar, instead of fiscal, years, to correspond with the annual mortality reports of the Federal Census Bureau.

I. SUMMARY.

TABLE 1.—Main and Minor Geographic Divisions of California, with Counties Included in Each.

NORTHERN CALIFORNIA.

Coast counties.

Del Norte	Lake	Napa	Trinity
Humboldt	Mendocino	Sonoma	

Interior counties.

Butte	Modoc	Shasta	Sutter
Colusa	Nevada	Sierra	Tehama
Glenn	Placer	Siskiyou	Yuba
Lassen	Plumas		

CENTRAL CALIFORNIA.

San Francisco.

(City and county)

Alameda County.

(Including Oakland, Alameda and Berkeley cities.)

Other bay counties.

Contra Costa	Marin	San Mateo
--------------	-------	-----------

Coast counties.

Monterey	San Luis Obispo	Santa Clara	Santa Cruz
San Benito			

Interior counties.

Alpine	Inyo	Merced	Stanislaus
Amador	Kern	Mono	Tulare
Calaveras	Kings	Sacramento	Tuolumne
El Dorado	Madera	San Joaquin	Yolo
Fresno	Mariposa	Solano	

SOUTHERN CALIFORNIA.

Los Angeles city.

Rest of Los Angeles County.

Other counties.

Imperial	Riverside	San Diego	Ventura
Orange	San Bernardino	Santa Barbara	

NOTE.—Tables on Vital Statistics in this Biennial Report are presented mainly for each of the 58 counties of California and for the 31 cities of 5,000 population in 1910. In some cases, however, figures are available only for counties in groups as shown in the above list of Main and Minor Geographic Divisions.

TABLE 2.—Birth, Death and Marriage Totals, with Increase and Rate per 1,000 Population, for California: 1906 to 1917.

Year	Total	Increase		Rate per 1,000 popula- tion
		Number	Per cent	
Births.				
1917	52,230	1,592	3.1	17.2
1916	50,638	2,568	5.3	17.2
1915	48,075	2,068	4.5	16.8
1914	46,012	2,160	4.9	16.7
1913	43,852	4,522	11.5	16.4
1912	39,330	4,502	12.9	15.2
1911	34,828	2,600	8.4	14.0
1910	32,138	1,256	4.1	13.4
1909	30,882	2,805	10.0	13.4
1908	28,077	3,408	13.8	12.7
1907	24,674	3,700	17.6	11.6
1906	20,974			10.3
Deaths.				
1917	42,084	2,224	5.6	13.9
1916	39,860	884	2.1	13.5
1915	39,026	1,489	4.0	13.7
1914	37,537	*1,062	*2.8	13.6
1913	38,599	1,890	5.1	14.4
1912	36,709	2,697	7.9	14.2
1911	34,012	1,614	5.0	13.7
1910	32,398	1,413	4.6	13.5
1909	30,985	*302	*1.0	13.4
1908	31,287	192	0.6	14.1
1907	31,095	1,792	6.1	14.6
1906	29,303			14.4
Marriages.				
1917	36,283	5,287	17.1	11.9
1916	30,996	*455	*1.4	10.5
1915	31,451	*451	*1.4	11.0
1914	31,902	519	1.7	11.5
1913	31,383	107	0.3	11.7
1912	31,276	3,973	14.6	12.1
1911	27,303	2,805	9.5	11.0
1910	24,837	3,020	8.8	10.4
1909	22,917	1,178	5.4	9.9
1908	21,739	*1,226	*5.5	9.8
1907	23,005	1,688	7.9	10.8
1906	21,317			10.5

*Decrease.

TABLE 3.—Estimated Midyear Population, Births, Deaths and Marriages, and Rates per 1,000 Population, for Counties: 1917 and 1916.

County	1917					1916				
	Esti- mated midyear popula- tion	Births	Deaths	Mar- riages	Rate per 1,000 population		Esti- mated midyear popula- tion	Births	Deaths	Mar- riages
					Births	Deaths				
California	3,087,968	52,280	42,084	36,288	17.2	13.9	2,946,347	50,688	39,860	30,906
Alameda	330,768	5,205	3,794	3,540	15.7	11.5	319,018	4,688	3,570	2,774
Alpine	309	2		4	6.5		309	3		
Amador	9,086	140	141	39	15.4	15.5	9,086	104	152	51
Butte	34,735	416	404	275	14.3	11.9	33,703	456	347	191
Calaveras	9,171	91	100	30	9.9	10.9	9,171	83	76	33
Colusa	8,001	142	120	51	17.7	15.0	7,963	144	91	40
Contra Costa	41,622	897	454	297	21.6	10.9	40,242	842	436	296
Del Norte	2,424	41	28	51	16.9	11.6	2,423	43	35	30
El Dorado	7,492	105	127	37	14.0	17.0	7,492	97	152	37
Fresno	103,246	2,417	1,344	1,155	23.4	13.0	98,418	2,180	1,116	1,059
Glenn	8,648	168	66	65	19.4	7.6	8,443	139	76	60
Humboldt	38,786	580	392	339	15.0	10.1	38,103	601	422	329
Imperial	18,928	590	390	307	31.2	20.1	18,192	508	319	244
Inyo	8,870	20	34	62	2.3	6.1	8,807	23	45	54
Kern	53,216	953	548	494	18.0	10.3	51,065	827	564	486
Kings	20,872	398	233	251	18.6	12.1	20,228	386	208	183
Lake	5,529	85	61	31	15.4	11.0	5,526	77	71	32
Lassen	5,014	115	68	50	22.9	13.6	4,985	132	66	57
Los Angeles	747,815	12,726	10,535	7,888	17.0	14.1	714,009	12,302	10,088	6,910
Madera	9,831	226	114	130	23.0	11.6	9,693	213	115	118
Marin	31,984	234	321	612	7.3	10.0	31,031	204	284	575
Mariposa	32	32	30	16	8.1	9.9	3,964	36	41	10
Mendocino	28,458	334	325	174	13.4	12.3	28,107	387	359	188
Merced	19,479	185	182	184	9.5	9.3	18,878	373	200	183
Modoc	7,066	104	44	75	14.8	6.3	6,862	110	41	55
Mono	2,042	6	4	4	2.9	2.0	2,042	7	9	2
Monterey	27,625	461	337	315	16.7	12.2	27,142	449	325	205
Napa	22,245	233	346	263	10.5	15.5	21,905	217	331	252
Nevada	14,965	177	205	89	11.8	13.7	14,965	198	204	85
Orange	45,196	1,081	652	1,502	23.5	14.4	43,708	1,028	584	1,467
Placer	20,026	354	253	90	17.7	12.6	19,778	347	239	104
Pumas	5,698	61	83	31	10.7	14.6	5,637	81	61	29
Riverside	46,979	681	552	608	14.5	12.4	45,257	731	576	484

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 3.—Estimated Midyear Population, Births, Deaths and Marriages, and Rates per 1,000 Population, for Counties: 1917 and 1916.—Continued.

County	1917					1916						
	Esti- mated midyear popu- lation	Births	Deaths	Mar- riages	Rate per 1,000 population		Esti- mated midyear popu- lation	Births	Deaths	Mar- riages	Rate per 1,000 population	
					Births	Deaths					Births	Deaths
Sacramento	83,786	1,783	1,417	1,299	21.3	16.9	81,369	1,724	1,204	1,145	21.1	14.8
San Benito	9,069	187	104	106	20.6	11.5	8,926	174	92	71	19.5	10.3
San Bernardino	77,712	1,313	1,274	937	16.9	16.4	74,798	1,492	1,159	821	19.0	15.5
San Diego	57,017	1,331	1,431	1,670	18.2	19.7	52,316	1,325	1,438	1,822	18.5	17.5
San Francisco	471,023	7,877	7,156	6,746	16.7	15.2	463,517	7,816	7,163	5,981	16.9	15.5
San Joaquin	61,884	1,233	1,378	1,030	20.9	22.3	60,337	1,062	1,183	806	18.1	19.6
San Luis Obispo	21,387	434	234	253	20.3	10.9	21,100	381	230	211	18.5	10.9
San Mateo	37,103	514	365	505	13.8	9.8	35,696	552	357	326	15.5	10.0
Santa Barbara	34,165	727	449	406	21.3	13.1	33,273	709	427	290	21.3	12.8
Santa Clara	100,564	1,655	1,612	1,086	16.5	16.0	98,262	1,682	1,596	878	17.1	15.9
Santa Cruz	20,518	415	352	346	14.1	11.9	20,650	410	335	208	14.1	13.6
Shasta	20,089	245	249	157	12.2	12.4	19,927	232	229	147	12.6	11.5
Sierra	4,137	30	35	14	7.2	8.4	4,149	35	34	9	8.4	8.2
Siskiyou	20,143	378	258	215	18.8	12.8	19,937	405	220	171	20.3	11.5
Solano	30,033	463	375	319	15.5	12.5	29,707	437	319	271	14.7	10.7
Sonoma	35,631	745	738	545	18.4	13.2	34,637	820	689	442	15.0	12.6
Stanislaus	31,991	719	420	386	22.5	13.1	30,677	645	378	297	21.0	12.3
Sutter	6,651	115	96	51	17.3	14.4	6,606	144	87	31	21.8	13.2
Tehama	11,697	187	165	121	16.0	14.1	11,636	213	143	96	18.3	12.3
Trinity	3,301	22	31	8	6.7	9.4	3,301	27	38	6	8.2	11.5
Tulare	47,897	1,006	588	398	21.0	11.2	46,169	992	442	369	21.6	9.6
Tuolumne	9,970	86	121	58	8.6	12.1	9,979	75	120	63	7.5	12.0
Ventura	21,252	528	345	273	24.8	16.2	20,549	534	286	183	25.6	13.7
Yolo	14,151	283	199	156	20.0	14.1	14,120	282	181	123	20.0	12.8
Yuba	11,080	158	167	119	14.2	14.2	10,936	139	158	115	12.7	14.4

TABLE 4.—Estimated Midyear Population, Births and Deaths, and Rates per 1,000 Population, for Individual Cities of 5,000 in 1910 and Rest of State:
1917 and 1916.

City	Estimated midyear population		Births		Deaths		Rate per 1,000 population			
							Births		Deaths	
	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916
California	3,037,968	2,946,347	52,230	50,638	42,064	39,860	17.2	17.2	13.9	13.5
Cities of 5,000 in 1910.....	1,844,785	1,773,690	30,984	29,692	25,370	24,235	16.7	16.7	13.8	13.7
Northern California:										
Eureka	15,142	14,664	251	291	201	233	16.6	19.8	13.3	15.9
Napa	7,072	6,894	125	117	80	103	17.7	17.0	12.6	14.9
Petaluma	7,346	7,143	166	155	146	90	22.6	21.7	19.9	12.6
Santa Rosa	8,652	8,536	152	164	134	151	17.6	19.2	15.5	17.7
Marysville	6,841	6,645	98	77	121	116	14.3	11.6	17.7	17.5
Central California:										
San Francisco	471,023	463,517	7,877	7,816	7,156	7,163	16.7	16.9	15.2	15.5
Alameda	28,433	27,732	417	396	291	261	14.7	14.3	10.2	9.4
Berkeley	60,427	57,653	747	714	478	458	12.4	12.4	7.9	7.9
Oakland	206,405	198,604	3,512	3,057	2,197	2,065	17.0	15.4	10.6	10.5
Richmond	8,949	8,652	311	306	107	134	34.8	35.4	12.0	15.5
San Rafael	7,434	7,226	91	101	91	81	12.2	14.0	12.2	11.2
San Luis Obispo.....	6,716	6,500	162	114	103	101	24.1	17.5	15.3	15.5
San Jose	39,810	38,902	620	723	484	532	15.6	18.7	10.9	13.7
Santa Cruz	15,150	14,594	152	136	168	178	10.0	9.3	11.1	12.2
Fresno	36,314	34,958	687	814	548	368	24.4	23.3	15.1	11.4
Bakersfield	17,543	16,874	496	398	347	362	28.3	23.6	19.8	21.5
Sacramento	68,984	66,895	1,344	1,294	1,220	1,026	19.5	19.3	17.7	15.3
Stockton	36,209	35,358	727	583	901	741	20.1	16.5	24.0	21.0
Vallejo	13,803	13,461	247	208	181	185	17.9	15.5	13.1	10.0
Southern California:										
Los Angeles	535,485	503,812	8,264	7,999	6,717	6,224	15.4	15.9	12.5	12.4
Alhambra	7,859	7,464	112	98	64	87	14.3	13.1	8.1	11.7
Long Beach	29,163	27,587	525	480	514	463	18.0	17.4	17.6	16.8
Pasadena	49,620	46,450	611	590	498	510	12.3	12.7	10.0	11.0
Pomona	13,624	13,150	246	224	148	154	18.1	17.0	10.9	11.7
Santa Monica	11,343	10,858	189	206	187	193	15.9	19.2	16.5	17.8
Santa Ana	10,961	10,627	209	271	184	165	24.5	25.5	16.8	15.5
Riverside	20,496	19,763	282	301	289	291	13.8	15.2	14.1	14.7
Redlands	14,573	14,000	159	166	150	137	10.9	11.9	10.3	9.8
San Bernardino	17,616	16,945	375	425	373	325	21.3	25.1	21.2	19.2
San Diego	56,412	53,330	1,124	1,083	1,048	1,056	19.9	20.3	18.6	19.8
Santa Barbara	11,360	14,846	355	370	285	272	23.1	24.9	18.6	18.3
Rest of State	1,193,183	1,172,687	21,846	20,956	16,714	15,625	17.9	17.9	14.0	13.3

TABLE 5.—Births and Deaths (Exclusive of Stillbirths) Reported for Registration Districts (Cities, Towns and Rural Parts of Counties): 1917 and 1916.

(Cities or incorporated towns not reporting births or deaths omitted from table.)

Registration district	Births		Deaths		Registration district	Births		Deaths	
	1917	1916	1917	1916		1917	1916	1917	1916
California	52,230	50,638	42,084	39,860	Kern County—Continued.				
Alameda County					Maricopa	29	18	7	4
Rural	5,905	4,656	3,794	3,570	McKittrick	3	1		1
Alameda	286	270	67	59	Taft	8	40	35	13
Albany	417	386	291	261	Tehachapi	5	55	3	3
Berkeley	26	22	7	7	Kings County	335	356	253	206
Berkeley	747	714	478	458	Rural	225	214	116	104
Emeryville	20	14	20	16	Corcoran	13	17	8	3
Hayward	54	42	50	49	Hanford	108	118	111	87
Livermore	43	43	42	39	Lemoore	43	37	30	16
Oakland	3,512	3,067	2,197	2,006	Lake County	66	77	61	71
Piedmont	9	13	20	17	Rural	66	53	46	36
Pleasanton	7	10	6	13	Lakeport	19	19	18	16
San Leandro	84	77	76	66	Lassen County	115	132	68	66
Alpine County	2	3			Rural	103	132	63	61
Amador County	140	164	141	152	Susana	12		5	
Rural	62	79	61	71	Los Angeles County	12,726	12,308	10,653	10,088
Amador	8	30	3	7	Rural	1,580	1,589	1,306	1,264
Jackson	26	23	52	53	Alhambra	113	98	64	57
Plymouth	16		8		Arcadia	7	10	3	3
Sutter Creek	28	32	17	21	Aviation	67	62	31	32
Butte County	494	456	415	381	Azusa	6	8		
Rural	332	290	236	198	Beverly Hills	6			
Blacks	61	64	4	9	Barbank	68	74	39	39
Chico	12	91	102	57	Claremont	4	13	6	16
Groville	79	66	54	11	Compton	16	18	34	30
Calaveras County					Covina	28	38	29	26
Rural	91	83	100	78	Flagle Rock	17	16	14	14
Angels	78	66	90	58	El Monte	10	31	14	71
Rural	18	15	10	18	El Segundo	10			
Colusa County	142	144	120	91	Glendale	126	106	161	117
Rural	108	117	66	77	Hermosa Beach	37	23	23	10
Colusa	34	27	25	14	Huntington Park	10	30	18	14
Contra Costa County	897	843	454	436	Inglewood	64	47	48	30
Rural	250	243	160	136	La Verne (formerly Lordsburg)	80	86	86	34
Antioch	25	54	21	23	Long Beach	43	39	16	460
Concord	5	13	9	6	Los Angeles	223	200	116	100
El Cerrito	1	3	2	1	Los Angeles Beach	2,000	2,000	6,710	6,700
Hercules			14						

Marinez	94	90	98	Monrovia	78	77	128	129
Pinole	31	4	6	Monterey Park	68	7	33	
Pittsburg	108	47	29	Pasadena	611	590	498	510
Richmond	311	107	134	Pomona	234	234	148	154
Walnut Creek	8		8	Redondo Beach	43	48	84	51
Del Norte County	41	23	35	San Fernando	73	48	22	28
Rural	21	14	35	San Gabriel	41	81	42	33
Orcutt City	30	14	152	San Marino	3	6	1	2
El Dorado County	106	127	152	Santa Monica	180	208	187	193
Rural	57	45	67	Sawtelle	25	38	49	68
Pacerville	48	85	85	Sierra Madre	16	11	47	68
Fresno County	2,130	1,844	1,116	South Pasadena	48	48	74	45
Rural	1,225	685	608	Troy	30	30	39	31
Clovis	15	7	8	Venice	43	58	67	53
Coalinga	124	35	29	Vernon	7	1	5	9
Firebaugh	2			Watts	44	55	34	33
Fowler	20	23	15	Whittier	112	101	86	74
Fresno	867	546	396	Madera County	228	213	114	115
Kingsburg	23	17	14	Rural	144	129	83	75
Reedley	37	22	14	Madera	82	84	81	40
Sanger	49	33	9	Marin County	234	204	321	254
Seama	35	24	23	Rural	64	107	133	123
Glenn County	168	68	76	Belvedere	10	12	4	6
Rural	113	107	55	Corte Madera	3			
Orland	35	5	5	Larkspur	1			
Willows	21	11	16	Mill Valley	21	37	3	14
Humboldt County	580	392	422	Ross	12	7	6	2
Rural	226	144	141	San Anselmo	11	11	19	6
Arcata	55	22	21	San Rafael	91	101	91	12
Blue Lake	8	7	7	Sausalito	23	22	22	20
Eureka	251	201	233	Mariposa County	33	36	39	41
Ferdale	23	12	10	Mendocino County	354	387	335	359
Fortuna	23	6	10	Rural	210	236	223	249
Imperial County	590	380	319	Point Arena	44	54	49	63
Rural	202	132	94	Port Bragg	12	7	3	2
Brawley	75	62	43	Point Arena	8		5	2
Calexico	108	62	43	Potter Valley	39	34	26	30
El Centro	100	111	112	Willits	41	49	19	13
Holville	47	19	8	Merced County	381	373	182	200
Imperial	63	30	19	Rural	234	230	126	154
Inyo County	20	54	46	Gustine	6	7	3	
Rural	16	37	30	Los Banos	29	28	16	14
Bishop	4	17	15	Merced	43	38	38	29
Kern County	958	548	564	Modoc County	104	110	44	41
Rural	336	174	174	Rural	32	100	35	31
Bakersfield	493	347	392	Alturas	12	10	9	10
Delano	10	1	5	Mono County	6	7	4	9

TABLE 5.—Births and Deaths (Exclusive of Stillbirths) Reported for Registration Districts (Cities, Towns and Rural Parts of Counties): 1917 and 1916—Continued.

(Cities or incorporated towns not reporting births or deaths omitted from table.)

Registration district	Births		Deaths		Registration district	Births		Deaths	
	1917	1916	1917	1916		1917	1916	1917	1916
Monterey County					San Mateo County—Continued.				
Rural	461	440	337	325	Hillsborough	2	2	4	6
King City	217	226	136	138	Redwood City	51	51	40	47
Monterey	27	11	11	6	San Bruno	20	22	8	11
Pacific Grove	100	113	65	67	San Bruno	130	111	83	68
Salinas	18	12	45	48	South San Francisco	69	61	33	48
Salinas	90	87	80	66	San Francisco	727	709	410	427
Napa County	233	217	546	531	Rural	256	213	98	97
Rural	83	70	418	389	Santa Barbara County	353	370	285	272
Calistoga	12	22	15	103	Lompoc	65	46	22	30
Napa	125	117	89	103	Santa Barbara	91	78	44	38
St. Helena	13	8	24	28	Santa Maria	1,053	1,082	1,012	1,061
Nevada County	177	198	905	204	Rural	769	717	907	832
Rural	65	75	99	104	Gilroy	65	59	47	46
Grass Valley	73	80	67	57	Los Gatos	27	35	43	25
Nevada City	39	43	39	43	Mayfield	7	10	15	12
Orange County	1,061	1,028	652	584	Morgan Hill	15	10	5	7
Rural	506	505	258	234	Mountain View	21	12	17	12
Anaheim	99	113	94	74	Palo Alto	56	46	30	39
Brea	8		1		San Jose	620	726	434	532
Fullerton	70	61	34	35	San Jose	58	45	49	50
Huntington Beach	38	36	21	22	Sunnyvale	17	22	5	11
Newport Beach	12	4	10		Rural	415	410	352	395
Orange	56	37	47	54	Santa Cruz	101	125	98	134
Santa Ana	269	271	184	165	Santa Cruz	152	136	168	178
Seal Beach	2	1	2		Watsonville	102	149	86	83
Stanton	1		1		Shasta County	245	232	240	220
Pleasant County	354	347	253	239	Rural	137	163	160	150
Rural	161	100	80	102	Kennett	42	28	13	13
Auburn	54	88	53	71	Redding	66	61	71	66
Colfax	12	7	25	24	Sierra County	30	35	35	34
Lincoln	32	31	9	9	Rural	22	25	20	20
Rocklin	8	9	31	6	Loyalton	8	10	6	4
Roseville	86	72	81	27	Shastiyon County	378	405	258	229
Plumas County	61	81	88	61	Rural	223	270	132	125
Riverdale County	681	731	592	556	Dorris	10	5	11	4
Rural	185	222	100	105	Dunsmuir	69	54	20	22
Banning	31	15	47	44	Elina	17	13	11	5
Beaumont	14	16	21	13	Fort Jones				
Blythe	15	7	19	14					

Corona	89	130	73	60	Montague	15	12	5	2
Elmore	12	10	9	17	Slason	25	16	6	12
Hemet	12	4	9	7	Yreka	19	35	60	52
Perris	27	12	8	2	Solano County	465	437	375	319
Riverside	282	301	290	291	Rural	113	122	86	97
San Jacinto	14	15	7	11	Benicia	27	19	42	21
Sacramento County	1,783	1,724	1,417	1,594	Dixon	5	14	13	10
Rural	439	430	197	1,778	Fairfield	12	6	7	15
Sacramento	1,344	1,294	1,220	1,098	Rio Vista	6	9	15	12
San Benito County	187	174	104	12	Suisun	7	10	7	5
Rural	115	98	53	44	Vacaville	48	49	24	7
Hollister	64	67	42	39	Vallejo	247	208	181	135
San Juan	8	11	9	9	Sonoma County	745	680	736	680
San Bernardino County	1,313	1,422	1,274	1,159	Rural	324	336	377	372
Rural	315	386	468	414	Coverdale	20	15	20	29
Chino	101	80	54	41	Headlands	43	39	35	29
Colton	110	143	73	86	Petaluma	166	153	146	90
Neville	46	75	44	40	Santa Rosa	152	164	134	161
Ontario	126	129	79	84	Sebastopol	22	35	11	14
Redlands	159	166	150	137	Sonoma	13	16	21	13
Rialto	9	8	3	11	Stanislaus County	719	645	480	378
San Bernardino	375	425	373	325	Rural	383	345	183	149
Upland	72	61	30	21	Modesto	189	169	161	143
San Diego County	1,558	1,625	1,431	1,438	Newman	14	16	19	16
Rural	188	206	183	155	Oakdale	47	42	19	34
Chula Vista	35	20	20	21	Turlock	136	73	38	36
Coronado	30	24	24	28	Sutter County	115	144	96	87
East San Diego	58	56	32	44	Rural	94	128	80	75
El Cajon	13	22	5	3	Yuba City	21	16	16	12
Escondido	41	35	31	28	Tehama County	187	213	165	143
La Mesa	11	7	18	24	Rural	76	90	80	80
National City	60	56	53	52	Corning	27	24	21	15
Oceanside	8	16	17	24	Red Bluff	84	92	61	37
San Diego	1,124	1,083	1,048	1,056	Tehama	7	7	3	11
San Francisco (city and county)	7,877	7,816	7,156	7,163	Trinity County	22	27	31	38
San Joaquin County	1,293	1,092	1,378	1,183	Tulare County	1,006	992	538	442
Rural	446	407	401	399	Rural	601	601	264	226
Loell	88	70	36	37	Dinuba	41	40	31	24
Stockton	727	583	901	741	Exeter	41	30	18	16
Tracy	32	32	20	6	Lindsay	41	83	17	10
San Luis Obispo County	494	391	234	230	Porterville	53	70	64	64
Rural	197	201	75	61	Tulare	53	63	46	37
Arroyo Grande	11	16	23	25	Visalia	90	105	98	80
Paso de Robles	64	60	33	43	Tuolumne County	75	121	120	120
San Luis Obispo	162	114	108	101	Rural	86	68	87	117
San Mateo County	514	552	365	357	Sonoma	37	34	34	7
Rural	105	219	147	131	Ventura County	526	534	345	295
Burlingame	29	35	26	20	Rural	125	156	94	92
Daily City	40	51	24	26	Fillmore	41	41	15	15

TABLE 5.—Births and Deaths (Exclusive of Stillbirths) Reported for Registration Districts (Cities, Towns and Rural Parts of Counties):
1917 and 1916—Continued.
(Cities or incorporated towns not reporting births or deaths omitted from table.)

Registration district	Births		Deaths		Registration district	Births		Deaths	
	1917	1916	1917	1916		1917	1916	1917	1916
Ventura County—Continued.					Yolo County—Continued.				
Oxnard	206	166	100	53	Winters	18	16	14	10
Sanja Paula	81	88	53	50	Woodland	92	86	65	46
Ventura	73	83	80	75	Yuba County	153	139	137	159
Yolo County	283	282	199	181	Rural	59	61	36	27
Rural	162	180	112	125	Marysville	98	77	121	116
Davis	11		8		Wheatland	1	1		8

II. Births.

The 52,230 babies in 1917 included 27,888 boys and 25,342 girls, while of the 50,638 in 1916 the males were 26,172 and the females 24,466.

The race distribution of births in 1917 was: White, 47,313; Japanese, 4,108; Chinese, 419; Negro, 328; and Indian, 62.

The figures for 1916 were: White, 46,272; Japanese, 3,721; Chinese, 425; Negro, 199; and Indian, 21.

The per cent white decreased steadily through the past twelve years, thus: 98.4 (1906), 97.7, 96.8, 96.3, 96.1, 95.5, 94.6, 93.2, 91.9, 91.3, 91.4 and 90.6 (1917).

The decrease in the proportion of white babies is due to marked increases in Japanese birth registrations as follows: 134 (1906), 221, 455, 682, 719, 995, 1,467, 2,215, 2,874, 3,342, 3,721 and 4,108 (1917).

TABLE 6.—Births Classified by Sex and Race,

County	Total live births	Male	Female	White			Negro	Indian
				Total	Male	Female		
California	52,230	27,868	25,362	47,313	24,319	22,994	228	62
Alameda	5,303	2,672	2,533	4,828	2,449	2,379	48	—
Alpine	2	1	1	2	1	1	—	—
Amador	140	71	69	140	71	69	—	—
Butte	494	252	242	467	240	227	—	2
Calaveras	91	53	38	91	53	38	—	—
Colusa	142	71	71	130	62	68	—	—
Contra Costa	807	450	447	854	425	429	1	—
Del Norte	41	21	20	41	21	20	—	—
El Dorado	105	51	54	102	50	52	—	—
Fresno	2,417	2,367	1,180	2,075	1,074	1,001	6	1
Glenn	168	87	81	163	85	78	—	—
Humboldt	580	308	272	549	294	255	1	30
Imperial	590	300	290	512	261	251	11	—
Inyo	20	11	9	19	10	9	—	—
Kern	958	491	467	923	478	445	7	—
Kings	398	198	190	350	179	171	1	—
Lake	85	42	43	81	39	42	—	3
Lassen	115	60	46	115	60	46	—	—
Los Angeles	12,726	6,438	6,288	11,340	5,769	5,590	100	7
Madera	226	117	109	222	115	107	1	1
Marin	234	123	111	221	122	109	—	—
Mariposa	32	22	10	32	22	10	—	—
Mendocino	354	195	159	351	193	158	—	—
Merced	361	190	171	351	185	166	—	—
Modoc	104	53	51	101	51	50	—	3
Mono	6	2	4	6	2	4	—	—
Monterey	461	234	227	364	180	175	2	—
Napa	233	106	127	223	105	127	—	—
Nevada	177	90	78	171	95	76	—	—
Orange	1,061	575	486	984	531	453	3	—
Placer	354	180	174	290	130	160	1	—
Plumas	61	32	29	59	30	29	—	—
Riverside	681	337	344	640	315	325	5	1
Sacramento	1,783	915	868	1,311	668	643	11	—
San Benito	187	100	87	145	79	66	—	—
San Bernardino	1,313	648	665	1,202	632	640	4	3
San Diego	1,558	841	717	1,435	808	682	13	1
San Francisco	7,877	4,043	3,834	7,404	3,809	3,595	27	—
San Joaquin	1,293	704	589	1,041	569	472	3	1
San Luis Obispo	434	223	211	418	212	206	—	—
San Mateo	514	238	276	486	229	259	2	—
Santa Barbara	727	385	342	658	345	313	3	—
Santa Clara	1,655	841	814	1,449	722	717	1	—
Santa Cruz	415	218	197	347	180	167	—	—
Shasta	245	127	118	241	125	116	1	2
Sierra	30	13	17	30	13	17	—	—
Siskiyou	378	175	203	376	175	201	1	—
Solano	465	247	218	393	208	188	8	—
Sonoma	745	376	369	701	357	344	—	5
Stanislaus	719	379	340	695	367	329	1	—
Sutter	115	63	52	98	54	44	—	—
Tehama	187	88	99	178	85	93	1	2
Trinity	22	11	11	22	11	11	—	—
Tulare	1,006	531	475	947	500	447	2	—
Tuolumne	86	41	45	86	41	45	—	—
Ventura	526	268	260	484	246	238	1	—
Yolo	283	156	127	225	118	107	—	—
Yuba	158	81	77	130	66	64	2	—

and by Sex and Maternal Nativity, for Counties: 1917.

Chinese	Japanese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
419	4,108	15,780	8,061	7,719	18,000	9,408	8,682	13,443	6,850	6,593
52	277	2,028	1,008	1,025	1,487	772	715	1,313	674	639
-----	-----	1	-----	1	1	1	-----	-----	-----	-----
-----	-----	69	38	31	20	9	11	51	24	27
2	23	214	106	108	196	110	86	57	24	33
-----	-----	55	37	18	20	9	11	16	7	9
1	11	83	37	46	37	19	18	10	6	4
-----	-----	42	282	136	146	186	97	89	386	192
-----	-----	15	10	5	15	7	8	11	4	7
-----	-----	3	75	38	37	14	9	5	13	3
12	323	486	254	232	855	450	405	734	370	364
1	4	76	39	37	63	34	29	24	12	12
-----	-----	291	158	133	115	64	51	143	72	71
-----	-----	67	56	28	334	165	169	122	68	54
-----	-----	1	6	4	2	12	6	1	-----	1
7	21	216	107	109	529	292	237	178	79	99
7	30	118	65	53	126	60	66	106	54	52
-----	-----	1	50	23	23	10	13	8	6	2
-----	-----	53	34	19	42	26	16	20	9	11
45	1,265	1,980	933	927	6,361	3,318	3,043	3,028	1,508	1,520
1	1	78	37	41	75	38	37	69	40	29
1	2	110	68	52	38	18	20	83	46	37
-----	-----	23	15	8	7	5	2	2	2	-----
-----	-----	3	196	102	94	76	42	34	79	30
-----	-----	10	118	61	57	97	45	52	136	79
-----	-----	65	35	30	30	14	16	6	2	4
-----	-----	4	-----	4	1	1	-----	1	1	-----
4	91	309	112	97	68	33	35	87	44	43
-----	-----	1	144	66	78	50	23	27	16	22
2	4	106	59	47	32	17	15	33	19	14
-----	-----	74	222	121	101	532	280	252	230	100
2	91	109	54	55	80	47	33	71	29	42
-----	-----	2	34	16	18	10	6	9	4	5
-----	-----	35	130	55	75	361	188	173	149	77
41	420	604	323	281	320	196	203	308	149	159
4	38	80	41	39	25	12	13	40	26	14
-----	-----	44	238	106	128	623	322	301	406	211
5	54	316	163	153	706	437	359	373	203	170
183	263	3,153	1,643	1,510	1,431	721	710	2,820	1,445	1,375
11	237	496	274	222	325	172	153	220	123	97
-----	-----	16	222	116	106	118	57	61	78	39
5	19	189	81	108	80	44	36	219	104	115
4	62	266	143	123	203	95	108	189	107	82
10	195	582	276	306	369	190	179	498	268	232
5	63	171	86	85	97	49	48	79	45	34
1	-----	129	65	64	68	37	31	44	23	21
-----	-----	21	10	11	6	3	3	3	-----	3
-----	-----	1	146	68	78	124	64	60	106	43
3	58	189	92	97	104	56	48	103	60	43
2	37	345	179	166	161	87	74	195	91	104
1	21	219	121	98	319	158	161	158	88	70
-----	-----	17	50	27	29	17	12	19	10	9
2	4	86	43	43	79	36	43	13	6	7
-----	-----	19	9	10	2	2	-----	1	-----	1
-----	-----	57	262	142	120	510	265	245	175	93
-----	-----	56	25	31	19	9	10	11	7	4
-----	-----	41	153	80	73	207	104	103	124	62
1	57	132	69	63	60	32	28	33	17	16
4	22	79	39	40	37	24	13	14	3	11

TABLE 7.—Births Classified by Sex and Race.

County	Total live births	Male	Female	White			Negro	Indian
				Total	Male	Female		
California	50,638	26,172	24,466	40,272	23,938	22,344	190	21
Alameda	4,658	2,306	2,292	4,811	2,186	2,123	10	-----
Alpine	3	1	2	3	1	2	-----	-----
Amador	164	84	80	463	84	79	-----	-----
Butte	456	236	230	440	227	213	-----	-----
Calaveras	83	40	43	83	40	43	-----	-----
Colusa	144	77	67	134	70	64	-----	1
Contra Costa	842	439	403	811	423	388	-----	-----
Del Norte	43	22	21	43	22	21	-----	-----
El Dorado	97	52	45	96	50	45	-----	-----
Fresno	2,180	1,186	994	1,962	1,094	868	9	-----
Glenn	139	72	67	137	72	65	-----	-----
Humboldt	601	294	307	587	288	299	1	13
Imperial	506	281	227	466	262	204	6	-----
Inyo	28	12	16	25	10	15	-----	-----
Kern	827	429	398	797	420	377	2	-----
Kings	366	187	190	348	170	178	3	-----
Lake	77	39	38	76	38	38	-----	-----
Lassen	132	70	62	131	70	61	-----	-----
Los Angeles	12,302	6,363	6,039	11,010	5,568	5,417	124	1
Madera	213	109	104	210	108	102	-----	-----
Marin	294	143	151	289	139	150	-----	-----
Mariposa	36	18	18	36	18	18	-----	-----
Mendocino	387	205	182	379	201	178	-----	-----
Merced	373	192	181	361	187	174	-----	-----
Modoc	110	66	44	108	65	43	-----	2
Mono	7	4	3	7	4	3	-----	-----
Monterey	449	243	206	341	175	166	1	-----
Napa	217	112	105	214	111	103	-----	-----
Nevada	198	116	82	192	114	78	-----	-----
Orange	1,028	531	497	940	486	454	2	-----
Placer	347	176	171	257	130	127	-----	2
Plumas	81	32	49	78	30	48	-----	-----
Riverside	731	368	363	670	339	331	9	-----
Sacramento	1,724	914	810	1,309	694	615	4	1
San Benito	174	88	86	142	72	70	-----	-----
San Bernardino	1,422	722	700	1,393	707	686	-----	-----
San Diego	1,525	786	739	1,468	759	709	4	-----
San Francisco	7,816	4,082	3,734	7,298	3,827	3,471	13	-----
San Joaquin	1,092	571	521	913	478	435	3	-----
San Luis Obispo	391	206	185	377	197	180	-----	-----
San Mateo	552	296	256	531	284	247	-----	-----
Santa Barbara	709	370	339	642	327	315	1	-----
Santa Clara	1,682	879	803	1,489	784	705	2	-----
Santa Cruz	410	234	176	331	189	142	-----	-----
Shasta	252	130	122	250	130	120	1	1
Sierra	35	17	18	35	17	18	-----	-----
Siskiyou	405	193	212	405	193	212	-----	-----
Solano	437	236	201	379	206	173	1	-----
Sonoma	820	412	408	799	363	386	-----	-----
Stanislaus	645	330	315	633	323	310	1	-----
Sutter	144	75	69	129	62	58	-----	-----
Tehama	213	103	110	204	97	107	-----	-----
Trinity	27	8	19	27	8	19	-----	-----
Tulare	992	513	479	932	479	453	2	-----
Tuolumne	75	37	38	75	37	38	-----	-----
Ventura	534	285	249	496	269	227	-----	-----
Yolo	282	150	132	235	122	113	-----	-----
Yuba	139	70	69	115	55	60	-----	-----

and by Sex and Maternal Nativity, for Counties: 1916.

Chinese	Japanese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
425	3,721	15,196	7,845	7,351	17,765	9,132	8,633	13,311	6,951	6,361
48	289	1,824	913	911	1,299	670	629	1,188	605	583
-----	-----	1	-----	1	-----	-----	-----	2	1	1
-----	-----	82	43	39	25	11	14	56	30	26
2	14	191	103	88	203	103	100	46	21	25
-----	-----	53	23	30	19	13	6	11	4	7
2	7	82	43	39	29	16	13	23	11	12
-----	-----	31	267	146	121	191	106	85	353	171
-----	-----	17	8	9	16	7	9	10	7	3
-----	-----	2	53	29	24	31	13	18	11	8
6	203	470	261	209	803	425	378	689	408	281
-----	-----	2	55	24	31	59	35	24	23	13
-----	-----	289	137	152	122	56	66	176	95	81
-----	-----	36	57	39	18	313	178	135	96	45
-----	-----	3	9	4	5	12	5	7	4	1
9	19	225	114	111	437	235	202	135	71	64
7	28	110	45	65	145	73	72	93	52	41
-----	-----	1	51	23	28	19	14	5	6	1
-----	-----	1	68	34	32	42	26	16	23	10
21	1,146	1,089	872	817	6,338	3,192	3,146	2,963	1,529	1,454
-----	-----	3	80	42	38	60	36	24	70	30
1	4	126	53	73	57	29	28	106	57	49
-----	-----	23	12	11	11	5	6	2	1	1
1	7	208	111	97	66	30	36	105	60	45
2	10	118	56	62	104	56	48	139	75	64
-----	-----	67	38	29	36	24	12	5	3	2
-----	-----	3	2	1	3	2	1	1	-----	1
7	100	188	101	87	69	38	31	84	36	48
-----	-----	3	104	53	51	30	23	57	28	29
4	2	107	62	45	36	20	16	49	32	17
-----	-----	85	207	105	102	527	273	254	108	98
3	85	104	54	50	89	45	44	64	31	33
2	1	41	13	28	32	15	17	5	2	3
3	40	136	73	63	362	175	187	172	91	81
38	372	611	327	284	372	189	183	326	178	148
3	29	88	42	46	22	16	6	32	14	18
-----	-----	29	255	137	118	761	381	389	377	189
5	48	291	155	136	811	422	389	366	182	184
26	290	3,041	1,589	1,461	1,289	678	611	2,968	1,569	1,399
12	164	444	234	210	236	150	136	183	94	89
-----	-----	14	206	104	102	114	62	52	31	26
4	17	205	114	91	80	39	41	246	131	115
4	62	290	166	124	208	93	113	146	68	78
16	175	565	287	278	389	208	181	535	289	246
5	74	155	84	71	96	60	36	80	45	35
-----	-----	127	62	65	72	39	33	51	29	22
-----	-----	23	12	11	6	3	3	6	2	4
-----	-----	158	70	88	128	63	65	119	60	59
5	52	191	113	78	99	48	51	89	45	44
4	47	364	189	184	182	91	91	223	112	111
1	10	176	85	91	319	163	156	138	75	63
-----	-----	24	67	39	35	14	21	18	9	9
-----	-----	9	109	46	63	77	41	36	18	8
-----	-----	22	7	15	-----	-----	-----	5	1	4
1	57	264	140	124	511	256	255	157	83	74
-----	-----	48	27	21	14	4	10	13	6	7
2	36	197	102	95	188	104	84	111	63	48
-----	-----	47	121	58	63	73	40	33	41	24
1	23	75	38	37	27	12	15	13	5	8

TABLE 8.—Births Classified by Sex and Race.

City	Total live births	Male	Female	White			Negro	Indian
				Total	Male	Female		
California	52,220	27,888	25,342	47,314	24,320	22,994	238	62
Cities of 5,000 in 1910.....	30,884	15,850	15,034	28,614	14,675	13,939	282	11
Northern California—								
Eureka	251	142	109	250	142	108	1	.....
Napa	125	57	68	124	56	68	.....	.....
Petaluma	166	79	87	165	78	87	.....	1
Santa Rosa	152	81	71	146	79	67	.....	1
Marysville	76	55	43	76	43	33	2	.....
Central California								
San Francisco	7,877	4,043	3,834	7,404	3,809	3,595	27	.....
Alameda	417	213	204	370	185	185	3	.....
Berkeley	747	404	343	686	305	321	5	.....
Oakland	3,512	1,784	1,728	3,299	1,661	1,638	38	.....
Richmond	311	154	157	301	148	153	.....	.....
San Rafael	91	45	46	89	44	45	.....	.....
San Luis Obispo	162	85	77	158	84	74	.....	.....
San Jose	629	306	312	574	286	288	1	.....
Santa Cruz	152	77	75	149	76	73	.....	.....
Fresno	867	465	422	811	425	386	5	.....
Bakersfield	496	245	251	478	238	240	5	.....
Sacramento	1,344	665	649	1,138	589	558	10	.....
Stockton	727	402	325	641	352	289	3	1
Vallejo	247	130	117	234	123	111	8	.....
Southern California—								
Los Angeles	5,264	4,186	4,078	7,480	3,842	3,678	142	6
Alhambra	112	54	58	111	53	58	.....	.....
Long Beach	527	264	261	495	247	248	1	.....
Pasadena	611	348	263	585	335	250	7	.....
Pomona	246	142	104	245	141	104	.....	.....
Santa Monica	189	88	92	172	86	86	4	.....
Santa Ana	299	131	138	264	129	135	.....	.....
Riverside	292	143	139	255	128	127	3	.....
Redlands	159	72	87	151	68	83	.....	1
San Bernardino	375	173	222	357	165	192	3	1
San Diego	1,124	611	513	1,075	563	492	11	.....
Santa Barbara	355	174	181	331	164	167	3	.....
Rest of State.....	21,346	11,028	10,308	18,700	9,645	9,055	46	51

and by Sex and Maternal Nativity, for Cities: 1917.

Chinese	Japanese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
419	4,107	15,780	8,061	7,719	18,090	9,408	8,682	13,444	6,851	6,593
333	1,644	9,250	4,781	4,528	10,958	5,689	5,269	8,397	4,255	4,142
-----	-----	140	79	61	58	34	24	52	29	23
-----	1	76	35	41	30	14	16	18	7	11
-----	-----	76	38	38	27	14	13	62	26	36
1	4	68	37	31	49	29	20	29	13	16
4	16	42	22	20	28	20	8	6	1	5
183	203	3,153	1,643	1,510	1,431	721	710	2,820	1,445	1,375
2	42	168	84	84	108	48	60	94	53	41
4	52	304	155	149	241	132	109	141	78	63
46	129	1,336	691	675	1,552	344	508	911	456	455
-----	10	114	58	56	101	50	51	86	40	46
-----	2	51	23	28	9	3	6	29	18	11
-----	4	85	47	38	50	26	24	23	11	12
3	42	238	120	118	120	57	72	207	109	98
-----	3	75	38	37	41	19	22	33	19	14
10	61	226	116	110	293	158	135	292	151	141
3	10	123	56	67	240	137	103	115	45	70
14	182	523	281	242	348	170	178	267	129	138
10	72	331	183	148	180	93	87	130	76	54
1	4	126	58	68	69	39	30	39	26	13
44	592	1,229	617	612	4,126	2,132	1,994	2,125	1,053	1,072
-----	1	28	15	13	65	28	37	18	10	8
-----	29	61	29	32	342	176	166	92	42	50
-----	19	64	39	25	410	238	172	111	58	53
-----	1	43	23	20	165	93	72	37	25	12
-----	4	38	13	25	101	58	43	33	15	18
-----	5	57	30	27	159	72	78	57	27	30
-----	24	49	21	28	158	81	77	48	26	22
-----	7	36	13	23	96	43	43	29	12	17
-----	14	75	30	45	184	89	95	98	46	52
5	33	206	107	101	576	321	255	291	155	136
3	18	116	60	56	111	59	61	104	54	50
86	2,463	6,521	3,330	3,191	7,132	3,719	3,413	5,047	2,596	2,451

TABLE 9.—Births Classified by Sex and Race.

City	Total live births	Male	Female	White			Negro	Indian
				Total	Male	Female		
California	50,638	26,172	24,466	46,272	23,928	22,344	190	21
Cities of 5,000 in 1910.....	29,682	15,292	14,390	27,022	14,352	12,670	109	2
Northern California—								
Eureka	291	144	147	290	144	146	1	—
Napa	117	70	47	115	69	46	—	—
Petaluma	155	80	75	153	79	74	—	—
Santa Rosa	164	87	77	160	84	76	—	—
Marysville	77	42	35	62	31	31	—	—
Central California—								
San Francisco	7,816	4,082	3,734	7,298	3,827	3,471	13	—
Alameda	896	196	200	351	174	177	—	—
Berkeley	714	366	348	656	330	326	1	—
Oakland	3,057	1,561	1,496	2,876	1,468	1,408	7	—
Richmond	306	160	146	302	159	143	—	—
San Rafael	101	46	55	99	44	55	—	—
San Luis Obispo	114	55	59	113	55	58	—	—
San Jose	726	388	338	679	365	314	—	—
Santa Cruz	136	75	61	134	75	59	—	—
Fresno	814	429	385	759	398	361	4	—
Bakersfield	398	207	191	376	199	177	2	—
Sacramento	1,294	665	569	1,117	597	520	4	1
Stockton	583	297	286	528	267	260	2	—
Vallejo	208	115	93	196	105	91	1	—
Southern California—								
Los Angeles	7,999	4,041	3,958	7,324	3,712	3,612	111	1
Alhambra	98	40	49	96	47	49	—	—
Long Beach	490	264	216	460	252	208	1	—
Pasadena	590	303	287	562	290	272	7	—
Pomona	224	104	120	220	108	117	1	—
Santa Monica	208	111	97	201	106	95	—	—
Santa Ana	271	138	133	264	134	130	—	—
Riverside	301	154	147	256	134	122	9	—
Redlands	166	81	85	159	78	81	—	—
San Bernardino	425	223	202	417	221	196	—	—
San Diego	1,083	542	541	1,047	528	519	4	—
Santa Barbara	370	187	183	354	177	177	1	—
Rest of state.....	20,956	10,880	10,076	18,650	9,676	8,974	30	19

and by Sex and Maternal Nativity, for Cities: 1916.

Chinese	Japanese	White children with mothers								
		Born in California			Born in other states			Foreign born		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
425	3,721	15,196	7,845	7,351	17,765	9,132	8,633	13,311	6,951	6,360
331	1,568	8,687	4,493	4,194	10,565	5,412	5,153	8,370	4,347	4,023
-----	-----	154	74	80	60	27	33	76	43	33
-----	2	60	35	25	31	19	12	24	15	9
-----	2	68	38	35	37	20	17	48	26	22
1	3	81	41	40	46	24	22	33	19	14
1	14	44	22	22	10	6	4	8	3	5
206	299	3,041	1,580	1,461	1,289	678	611	2,968	1,509	1,369
-----	45	177	96	91	87	44	43	87	44	43
1	56	280	126	154	244	124	120	132	80	52
46	128	1,175	609	566	892	461	431	809	398	411
-----	4	100	51	49	92	54	38	110	54	56
-----	2	51	20	31	16	6	10	32	18	14
-----	1	69	30	39	33	18	15	11	7	4
6	41	229	124	105	153	80	73	297	161	136
2	-----	58	30	28	50	32	18	26	13	13
2	49	210	119	91	316	157	159	233	122	111
7	13	126	63	63	184	101	83	66	35	31
16	156	526	283	243	318	159	159	273	155	118
11	44	277	147	130	145	69	76	104	51	53
4	7	108	56	47	61	30	31	32	19	13
19	544	1,110	570	540	4,062	2,057	2,005	2,152	1,085	1,067
-----	2	17	9	8	66	32	34	13	6	7
-----	19	57	33	24	339	180	159	64	39	25
-----	21	61	34	27	387	192	195	114	64	50
-----	3	35	14	21	157	72	85	28	17	11
-----	7	27	17	10	139	73	66	35	16	19
-----	7	56	21	35	155	81	74	53	32	21
3	33	45	27	18	136	75	61	75	32	43
-----	7	29	14	15	105	54	51	25	10	15
-----	8	96	58	38	218	109	109	103	54	49
5	27	190	92	98	598	311	287	259	125	134
1	14	135	75	60	139	67	72	80	35	45
94	2,168	6,509	3,352	3,157	7,200	3,720	3,480	4,941	2,004	2,337

TABLE 10.—Mothers Classified by Race and Nativity, with Per Cent

County	Mothers, 1917						Total
	Total	White			Non-Cau- casian		
		Total	Born in California	Born in other states		Foreign born	
California	52,230	47,313	15,780	18,090	13,443	4,917	50,638
Alameda	5,206	4,828	2,028	1,487	1,313	377	4,658
Alpine	2	2	1	1			3
Amador	140	140	69	20	51		164
Butte	404	467	214	196	57	27	456
Calaveras	91	91	55	20	16		83
Colusa	142	130	83	37	10	12	144
Contra Costa	897	854	282	186	386	43	842
Del Norte	41	41	15	15	11		43
El Dorado	105	102	75	14	13	3	97
Fresno	2,417	2,075	486	855	734	342	2,189
Glenn	166	163	76	63	24	5	139
Humboldt	580	549	291	115	143	31	601
Imperial	509	512	56	334	122	78	508
Inyo	20	19	6	12	1	1	28
Kern	958	923	216	529	178	35	827
Kings	288	350	118	126	106	38	386
Lake	85	81	50	23	8	4	77
Lassen	115	115	53	42	20		132
Los Angeles	12,726	11,249	1,800	6,361	3,028	1,477	12,802
Madera	226	222	78	75	69	4	213
Marin	221	231	110	38	83	3	294
Mariposa	32	32	23	7	2		36
Mendocino	354	351	196	76	79	3	387
Merced	301	351	118	97	136	10	373
Modoc	104	101	65	30	6	3	110
Mono	6	6	4	1	1		7
Monterey	461	364	209	68	87	97	449
Napa	233	232	144	50	38	1	217
Nevada	177	171	106	32	33	6	196
Orange	1,061	984	222	532	230	77	1,038
Placer	354	290	109	80	71	94	347
Plumas	61	59	34	16	9	2	81
Riverside	681	640	130	361	149	41	731
Sacramento	1,784	1,311	604	399	308	472	1,734
San Benito	187	145	80	25	40	42	174
San Bernardino	1,313	1,202	233	623	406	51	1,322
San Diego	1,558	1,485	316	796	373	73	1,825
San Francisco	7,877	7,404	3,153	1,431	2,820	473	7,816
San Joaquin	1,298	1,041	406	325	220	262	1,092
San Luis Obispo	434	418	222	118	78	16	391
San Mateo	511	488	189	80	219	26	552
Santa Barbara	727	658	266	203	189	60	709
Santa Clara	1,655	1,449	582	369	498	206	1,688
Santa Cruz	415	347	171	97	79	68	410
Shasta	245	241	129	68	44	4	252
Sierra	30	30	21	6	3		35
Siskiyou	378	376	146	124	106	2	405
Solano	465	396	189	104	108	69	437
Sonoma	745	701	345	161	195	44	820
Stanislaus	719	696	219	319	158	23	645
Sutter	115	98	50	29	19	17	144
Tehama	187	178	86	79	13	9	213
Trinity	22	22	19	2	1		27
Tulare	1,006	947	262	510	175	59	982
Tuolumne	86	86	56	19	11		75
Ventura	526	484	158	207	124	42	534
Yolo	283	225	132	60	33	58	298
Yuba	155	130	79	37	14	28	159

Distribution of White Mothers by Nativity, for Counties: 1917 and 1916.

Mothers, 1916				Non-California	Per cent of white mothers					
White					Born in California		Born in other states		Foreign born	
Total	Born in California	Born in other states	Foreign born		1917	1916	1917	1916	1917	1916
46,272	15,196	17,765	13,811	4,866	33.4	32.8	38.2	38.4	28.4	28.8
4,311	1,824	1,299	1,188	347	42.0	42.3	30.8	30.1	27.2	27.6
8	1		2		50.0	33.3	50.0			66.7
163	82	25	56	1	49.3	50.3	14.3	15.3	36.4	34.4
440	191	203	46	16	45.8	43.4	42.0	46.1	12.2	10.5
88	53	19	11		60.4	63.9	22.0	22.9	17.6	13.2
184	82	29	23	10	63.8	61.2	28.5	21.4	7.7	17.2
811	267	191	353	31	33.0	32.9	21.8	23.6	45.2	43.5
43	17	16	10		36.6	39.5	36.6	37.2	26.8	23.3
95	53	31	11	2	73.5	55.8	13.7	32.6	12.8	11.6
1,962	470	803	689	218	23.4	24.0	41.2	40.9	35.4	35.1
137	55	59	23	2	46.6	40.1	38.7	43.1	14.7	16.8
587	289	122	176	14	53.0	49.2	20.9	20.8	26.1	30.0
466	57	313	96	42	10.9	12.2	65.3	67.2	23.8	20.6
25	9	12	4	3	31.6	36.0	63.1	48.0	5.3	16.0
797	225	437	135	30	23.4	28.2	57.3	54.8	19.3	17.0
348	110	145	93	38	33.7	31.6	36.0	41.7	30.3	26.7
76	51	19	6	1	61.7	67.1	28.4	25.0	9.9	7.9
131	66	42	23	1	46.1	50.4	36.5	32.1	17.4	17.5
11,010	1,689	6,338	2,983	1,292	16.5	15.3	56.6	57.6	26.9	27.1
210	80	60	70	3	35.1	38.1	33.8	28.6	31.1	33.3
289	126	57	106	5	47.6	43.6	16.5	19.7	35.9	36.7
36	23	11	2		71.9	63.9	21.9	30.6	6.2	5.5
379	206	66	105	8	55.8	54.9	21.7	17.4	22.5	27.7
361	118	104	139	12	33.6	32.7	27.6	28.8	38.8	38.5
168	67	36	5	2	64.4	62.1	29.7	33.3	5.9	4.6
7	3	3	1		66.7	42.9	16.7	42.8	16.6	14.3
341	188	69	84	108	57.4	55.2	18.7	20.2	23.9	24.6
214	104	53	57	3	62.1	48.6	21.5	24.8	16.4	26.6
192	107	36	49	6	62.0	55.7	18.7	18.8	19.3	25.5
940	207	527	206	88	22.5	22.0	54.1	56.1	23.4	21.9
257	104	89	64	90	41.9	40.5	30.8	34.6	27.3	24.9
78	41	32	5	3	57.6	52.6	27.1	41.0	15.3	6.4
670	136	362	172	61	29.3	20.3	56.4	54.0	23.3	25.7
1,309	611	372	326	415	46.1	46.7	30.4	28.4	23.5	24.9
142	88	22	32	32	55.2	62.0	17.2	15.5	27.6	22.5
1,393	255	761	377	29	18.4	18.3	49.4	54.6	32.2	27.1
1,468	291	811	366	57	21.3	19.8	53.6	55.3	25.1	24.9
7,298	3,041	1,289	2,968	518	42.6	41.7	19.3	17.6	38.1	40.7
913	444	286	183	179	47.7	48.0	31.2	31.3	21.1	20.1
377	206	114	57	14	53.1	54.7	28.2	30.2	18.7	15.1
531	205	80	246	21	38.7	38.6	16.4	15.1	44.9	46.8
942	290	206	146	67	40.4	45.2	30.9	32.1	28.7	22.7
1,489	565	389	535	193	40.2	38.0	25.4	26.1	34.4	35.9
331	155	96	80	79	49.3	46.8	27.9	29.0	22.8	24.2
250	127	72	51	2	53.5	50.8	28.2	28.8	18.3	20.4
35	23	6	6		70.0	65.7	20.0	17.2	10.0	17.1
405	158	128	119		38.8	39.0	33.0	31.6	28.2	29.4
379	191	99	89	58	47.7	50.4	26.3	26.1	26.0	23.5
769	364	182	223	51	49.2	47.3	23.0	23.7	27.8	29.0
633	176	319	138	12	31.5	27.8	45.8	50.4	22.7	21.8
120	67	35	18	24	51.0	55.8	29.6	29.2	19.4	15.0
204	109	77	18	9	48.3	53.4	44.4	37.8	7.3	8.8
27	22		5		86.4	81.5	9.1		4.5	18.5
932	264	511	157	60	27.7	28.3	53.8	54.8	18.5	16.9
75	48	14	13		65.1	64.0	22.1	18.7	12.8	17.3
496	197	188	111	38	31.6	39.7	42.8	37.9	25.6	22.4
235	121	73	41	37	58.7	51.5	26.7	31.1	14.6	17.4
115	75	27	13	24	60.8	65.2	28.4	23.5	10.8	11.3

TABLE 11.—Children Classified by Order of Birth, With Per Cents, for California: 1917 and 1916.

Order of birth	Births		Per cents		Sum of per cents	
	1917	1916	1917	1916	1917	1916
State totals	52,230	50,638	100.0	100.0	100.0	100.0
First born	17,631	17,248	33.8	34.1	33.6	34.1
Second born	13,371	12,891	25.6	25.5	59.4	59.6
Third born	8,134	7,670	15.6	15.1	75.0	74.7
Fourth born	4,794	4,408	9.2	8.8	84.2	83.5
Fifth born	2,886	2,719	5.5	5.4	89.7	88.9
Sixth born	1,907	1,841	3.7	3.6	93.4	92.5
Seventh born	1,169	1,097	2.2	2.2	95.6	94.7
Eighth born	735	715	1.4	1.4	97.0	96.1
Ninth born	491	431	0.9	0.8	97.9	96.9
Tenth and over	753	770	1.4	1.5	99.3	98.4
Unknown	359	788	0.7	1.6		

TABLE 12.—Children Classified by Order of Birth, for Mothers Classified by Race and Nativity, with Per Cents, for California: 1917 and 1916.

Order of birth	Births				Per cents			
	White mothers			Non-Caucasian mothers, mainly Japanese	White mothers			Non-Caucasian mothers, mainly Japanese
	Born in California	Born in other states	Foreign born		Born in California	Born in other states	Foreign born	
1917—State totals...	15,780	18,090	13,443	4,917	100.0	100.0	100.0	100.0
First born	6,381	6,388	3,170	1,492	40.4	36.4	23.6	30.3
Second born	4,219	4,803	2,986	1,364	26.7	26.6	22.2	27.7
Third born	2,192	2,664	2,331	937	13.9	14.7	17.3	19.1
Fourth born	1,156	1,586	1,540	510	7.3	8.8	11.5	10.4
Fifth born	675	809	1,084	238	4.3	5.0	8.1	4.8
Sixth born	422	500	772	153	2.7	3.1	5.7	3.1
Seventh born	277	305	501	87	1.8	1.7	3.7	1.8
Eighth born	142	222	317	54	0.9	1.2	2.4	1.1
Ninth born	110	110	238	31	0.7	0.6	1.8	0.6
Tenth and over...	153	188	383	82	1.0	1.0	2.8	0.7
Unknown	53	166	122	19	0.3	0.9	0.9	0.4
1916—State totals...	15,196	17,765	13,311	4,366	100.0	100.0	100.0	100.0
First born	6,018	6,509	3,221	1,500	39.6	36.6	24.2	34.3
Second born	3,978	4,565	3,132	1,186	26.2	25.9	23.5	27.2
Third born	2,140	2,652	2,181	697	14.1	14.9	16.4	16.9
Fourth born	1,136	1,518	1,456	359	7.5	8.6	10.9	8.2
Fifth born	659	871	968	221	4.3	4.9	7.3	5.1
Sixth born	419	549	751	122	2.8	3.1	5.7	2.8
Seventh born	254	319	449	75	1.7	1.8	3.4	1.7
Eighth born	158	202	323	32	1.0	1.1	2.4	0.7
Ninth born	97	114	208	17	0.6	0.6	1.5	0.4
Tenth and over...	162	160	425	23	1.1	0.9	3.2	0.5
Unknown	175	276	203	134	1.1	1.6	1.5	3.1

III. Infant Mortality.

The infant mortality rate, or proportion of deaths under 1 year per 1,000 live births, was 78 for California in 1917 against 73 in 1916 and 74 in 1915.

Counties with relatively high infant mortality rates in 1917 were as follows: San Bernardino, 142; Sierra, 133, Ventura, 127; Imperial, 122; Merced and Riverside, each, 119; Shasta, 114; Kings, 111; Tulare, 109; and Fresno, 102.

The infant mortality rate per 1,000 births in 1917 was 147 for San Bernardino city, 121 for Fresno city, and 101 for Redlands. On the other hand, the infant mortality rate was only 33 for Pasadena, 41 for Alameda, 45 for Alhambra, 46 for Berkeley, 48 for Napa, 53 for Pomona, and 56 for San Diego.

TABLE 13.—Birth Registration and Infant Mortality Data, for California: 1906 to 1917.

Year	Total live births	Deaths at all ages	Deaths under 1 year	Infant mortality rate per 1,000 births	Ratio of deaths under 1 year per 1,000 deaths at all ages	Relative excess of births over deaths
1917	52,230	42,064	4,061	78	97	24.1
1916	50,638	39,860	3,679	73	92	27.0
1915	48,075	39,026	3,570	74	92	23.2
1914	46,012	37,537	3,964	86	106	22.6
1913	43,852	36,560	4,336	99	112	13.6
1912	39,330	36,709	3,942	100	108	7.1
1911	34,828	34,012	3,528	101	104	2.4
1910	32,138	32,396	3,727	116	115	-----
1909	30,882	30,965	3,480	113	112	-----
1908	28,077	31,287	3,592	128	115	-----
1907	24,674	31,095	3,422	139	110	-----
1906	20,974	29,303	3,347	160	114	-----

TABLE 14.—Infant Mortality Rates, for Counties: 1917.

County	Total live births	Deaths at all ages	Deaths under 1 year	Infant mortality rate per 1,000 births	Distribution of 1,822 lives to be saved in proportion to 1917 birth total
California	52,230	42,084	4,081	78	1,822
Alameda	5,205	3,704	373	72	182
Alpine	2				
Amador	140	141	12	86	5
Butte	494	415	44	89	17
Calaveras	91	100	5	55	3
Colusa	142	130	10	70	5
Contra Costa	897	454	71	79	31
Del Norte	41	28	1	24	1
El Dorado	105	127	5	48	4
Fresno	2,417	1,344	247	102	84
Glenn	168	66	7	42	6
Humboldt	580	392	51	88	20
Imperial	580	380	72	122	21
Inyo	20	54	2	100	1
Kern	958	548	73	76	33
Kings	388	253	43	111	14
Lake	85	61	6	71	3
Lassen	115	68	8	70	4
Los Angeles	12,726	10,555	880	70	444
Madera	226	114	22	97	8
Marin	234	321	19	81	8
Mariposa	32	39	1	31	1
Mendocino	354	325	19	54	12
Merced	361	182	43	119	13
Modoc	104	44	7	67	4
Mono	6	4			
Monterey	461	337	34	74	16
Napa	233	546	12	52	8
Nevada	177	205	9	51	6
Orange	1,061	652	106	100	37
Placer	354	253	20	56	12
Plumas	61	83	10	16	3
Riverside	681	582	81	119	24
Sacramento	1,783	1,417	154	86	62
San Benito	187	104	17	91	7
San Bernardino	1,313	1,274	186	142	46
San Diego	1,558	1,431	82	53	54
San Francisco	7,877	7,156	505	64	275
San Joaquin	1,293	1,378	105	81	45
San Luis Obispo	434	234	26	60	15
San Mateo	514	365	30	58	18
Santa Barbara	727	449	58	80	25
Santa Clara	1,655	1,612	185	82	58
Santa Cruz	415	352	35	84	14
Shasta	245	249	28	114	9
Sierra	30	35	4	133	1
Siskiyou	378	258	35	93	13
Solano	465	375	44	95	16
Sonoma	745	736	52	70	26
Stanislaus	719	430	52	72	25
Sutter	115	96	6	52	4
Tehama	187	165	16	86	7
Trinity	22	31			1
Tulare	1,006	538	110	109	35
Tuolumne	86	121	3	35	3
Ventura	526	345	67	127	18
Yolo	283	199	18	64	10
Yuba	158	157	11	70	6

TABLE 15.—Infant Mortality Rates, for Cities: 1917.

City	Total live births	Deaths at all ages	Deaths under 1 year	Infant mortality rate per 1,000 births
California	52,230	42,084	4,081	78
Cities of 5,000 in 1910.....	30,884	25,370	2,202	71
Northern California				
Eureka	251	201	17	68
Napa	125	89	6	48
Petaluma	166	146	13	78
Santa Rosa	152	134	12	79
Marysville	98	121	7	71
Central California—				
San Francisco	7,877	7,156	506	61
Alameda	417	291	17	41
Berkeley	747	478	34	46
Oakland	3,512	2,197	250	71
Richmond	311	107	21	68
San Rafael	91	91	7	77
San Luis Obispo.....	162	103	10	62
San Jose	620	434	42	68
Santa Cruz	152	168	13	86
Fresno	887	548	107	121
Bakersfield	496	347	41	83
Sacramento	1,344	1,220	127	94
Stockton	727	901	66	89
Vallejo	247	181	19	77
Southern California -				
Los Angeles	8,264	6,717	591	72
Alhambra	112	64	5	45
Long Beach	525	514	32	61
Pasadena	611	498	20	33
Pomona	246	148	13	53
Santa Monica	180	187	14	78
Santa Ana	260	184	22	82
Riverside	282	280	27	96
Redlands	159	150	16	101
San Bernardino	375	373	56	147
San Diego	1,124	1,048	68	61
Santa Barbara	355	285	31	87
Rest of state.....	21,346	16,714	1,879	88

IV. Deaths.

Diseases of the circulatory system (heart disease, etc.) constitute the principal group of causes of death in California, the per cent of total deaths for this group being 17.8 in 1917 and 20.2 in 1916, against the annual average of 17.0 for 1908 to 1917, and the death rates per 100,000 population being 246.3 and 272.9 as compared with the annual average of 234.1 for the ten-year period just ended.

Tuberculosis, however, is the leading single cause of death in this state, causing about one-seventh of all deaths (13.0 per cent in 1917 and 13.2 per cent in 1916, against the average of 14.2 for 1908 to 1917). The tuberculosis death rate per 100,000 population was 179.6 in 1917 and 178.8 in 1916, against 196.4 for the last ten years.

Next after heart disease, etc., and tuberculosis come diseases of the respiratory system (pneumonia, etc.), diseases of the nervous system

(meningitis, apoplexy, etc.), diseases of the digestive system (diarrhea, etc.), miscellaneous violence (besides suicide), Bright's disease and nephritis, cancer, and also epidemic diseases.

Typhoid fever shows a notable reduction in mortality in the whole twelve years since 1906. The deaths were successively as follows: 657 (1906), 558, 540, 461, 477, 444, 454, 436, 376, 276, 208, and 225 (1917).— Similarly, the death rates decreased continuously between 1906 and 1917 thus: 32.3, 26.3, 24.4, 20.0, 19.9, 17.8, 17.6, 16.3, 13.6, 9.7, 7.1, and 7.4.

Analysis of mortality by months shows that the period of high death rates in December to February is followed by steady decreases month after month to the period of minimum mortality in July to October.

Tuberculosis caused 5,457 deaths in 1917 and 5,267 in 1916, the per cents being 13.0 and 13.2, respectively.

Classification of deaths from tuberculosis by length of residence shows that north of Tehachapi many native Californians and old-time residents succumb to this disease. South of Tehachapi, on the other hand, deaths from tuberculosis occur largely among newly arrived consumptives.

Data for 1917 and 1916 on length of residence for all causes of death show that in southern California, where nearly one-sixth (15.5 per cent each year) of all deaths are due to tuberculosis, the proportion for this disease is nearly one-fourth (23.5 and 21.9 per cent, respectively) among all decedents who had lived in the state less than a year and over one-fifth (20.3 and 20.7 per cent, respectively) among those who had been here only one to nine years.

Figures for 1917 and 1916, as for 1911 to 1915, indicate that the months of greatest mortality from tuberculosis for California as a whole are February, March, April and May, while deaths from this disease are relatively least numerous in August, September, October and November.

In short, the death rate of California is evidently swollen considerably by deaths occurring here from disease contracted elsewhere, for where tuberculosis is most prevalent a large proportion of the victims are residents of very short standing. Moreover, infection from these newly arrived consumptives accounts for some of the deaths among native Californians and old-time residents.

Of the 42,084 decedents in 1917, the males were 25,579 and the females 16,505, while among the 39,860 in 1916 the males were 24,202 and the females 15,658. The per cent male was 60.8 in 1917 and 60.7 in 1916 against the average of 62.0 for the preceding ten-year period, 1906 to 1915.

In 1915 the white decedents numbered 39,568; the Japanese, 910; the Chinese, 818; the Negroes, 622; and the Indians, 166. The figures for 1916 were: White, 37,591; Japanese, 739; Chinese, 727; Negro, 624; and Indian, 179. The per cent white was 94.0 in 1917 and 94.3 in 1916, or about the same as the average of 94.6 for the preceding ten-year period. In the last two years the Japanese have finally drawn ahead of the Chinese among California decedents.

Of the white decedents in 1917 and 1916 those born in other states were 15,832 and 14,991, the foreign born were 12,443 and 12,148:

those born in California were 10,249 and 9,469; and the nativity was unknown for 1,044 and 983. The per cent distribution of white decedents in 1917 and 1916, respectively, was: Other states, 40.0 and 39.9; foreign countries, 31.5 and 32.3; California, 25.9 and 25.2; and unknown, 2.6 each year.

The median age of California decedents, half being younger and half older, was 52.0 years in 1917 and 52.5 in 1916 against 51.8 in 1915, 49.6 in 1914, 49.4 in 1913, 49.2 in 1912, and 48.8 in 1911. In general, Californians live longer every year, the median age at death having advanced about three years between 1911 and 1917.

In both 1917 and 1916 the median age was notably low for typhoid fever, 29.4 and 27.3; tuberculosis, 35.9 and 36.3; miscellaneous violence (accidents, etc.), 39.5 and 38.3; suicide, 43.4 and 45.4; as well as digestive ailments, including diarrhea, 36.1 and 37.3.

On the other hand, the median ages both years were relatively high for other causes, as follows: Respiratory system (pneumonia, etc.), 52.4 and 55.3; cancer, 61.2 and 60.6; nervous system (apoplexy, etc.), 62.2 and 60.9; Bright's disease, 63.5 and 63.7; and circulatory system (heart disease, etc.), 68.8 and 68.2.

LE 16.—Deaths from Certain Principal Causes, with Proportion per 100,000 Total Deaths and Death Rate per 100,000 Population, for California: 1908 to 1917.

Cause of death	Deaths										Proportion per 1,000 total deaths					
	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	Annual aver- age 1908 to 1917	1917	1916	1915	1914	1913
All causes	42,054	39,800	39,026	37,537	38,599	36,709	34,012	32,398	30,985	31,287	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	225	206	276	376	436	454	444	477	461	540	11.1	5.3	5.2	7.1	10.0	11.3
Malarial fever	47	54	45	70	77	101	121	113	112	80	2.3	1.1	1.4	1.1	1.9	2.0
Smallpox	13	12	3	1	15	16	9	1	6	9	0.2	0.3	0.3	0.1	0.4	0.4
Measles	188	41	154	153	154	134	84	169	119	101	3.6	4.5	1.0	3.4	4.1	4.0
Scarlet fever	49	34	53	90	85	34	81	69	69	104	1.9	1.2	0.9	1.4	2.4	2.2
Whooping cough	200	197	124	306	128	183	177	307	217	149	5.6	4.8	4.9	3.2	8.2	8.3
Diphtheria and croup	207	200	310	266	186	159	167	218	243	391	6.3	4.8	7.3	7.9	7.1	4.8
Infuenza	277	289	181	138	220	146	125	78	82	125	4.4	6.6	7.2	4.6	3.7	5.7
Plague	1	1	1	1	2	1	1	1	1	1	•	•	•	•	•	•
Other epidemic diseases	141	135	116	132	180	186	169	204	108	126	4.2	3.4	3.4	3.0	3.5	4.7
Tuberculosis of lungs	4,758	4,608	4,752	4,529	4,536	4,312	4,353	4,161	4,061	3,945	122.1	113.8	115.6	121.8	120.6	117.5
Tuberculosis of other organs	669	650	799	791	966	812	761	711	612	690	20.3	15.9	16.5	20.5	21.1	22.4
Syphilis and gonorrhea	309	278	251	237	221	207	204	190	154	128	5.9	7.3	6.9	6.4	6.8	5.7
Cancer	3,085	2,379	2,776	2,687	2,565	2,306	2,029	1,984	1,945	1,737	65.7	73.3	72.2	71.1	71.6	68.4
Other general diseases	1,515	1,421	1,384	1,354	1,512	1,414	1,334	1,167	1,023	1,058	38.3	36.0	35.7	35.7	38.1	39.2
Meningitis	282	236	273	331	405	303	381	369	398	571	10.1	6.7	5.9	7.0	8.8	10.5
Other diseases of nervous system	3,413	2,692	3,151	3,239	3,315	2,959	2,796	2,832	2,479	2,422	80.3	81.1	87.5	80.7	86.3	85.9
Diseases of circulatory system	7,488	8,040	7,251	6,397	6,231	6,376	5,516	5,067	4,966	4,540	199.7	177.8	181.7	185.3	170.4	162.7
Pneumonia and broncho-pneu- monia	3,799	3,432	3,063	2,677	2,938	2,968	2,672	2,438	2,061	2,421	78.2	90.3	86.1	78.5	71.3	76.1
Other diseases of respiratory sys- tem	800	702	728	786	868	872	802	775	842	861	22.5	19.0	17.6	18.7	20.9	22.5
Diarrhea and enteritis, under 2 years	910	792	795	889	1,270	1,056	1,016	1,029	966	922	27.0	21.6	19.9	20.4	23.7	32.9
Diarrhea and enteritis, 2 years and over	384	434	415	352	369	359	307	288	270	243	9.4	9.1	10.9	10.6	9.4	9.6
Other diseases of digestive system	2,246	1,956	1,949	1,932	1,995	1,980	1,766	1,633	1,596	1,646	51.6	53.4	49.1	49.9	51.5	51.7
Bright's disease and nephritis	3,188	2,922	2,694	2,446	2,392	2,185	2,185	2,034	1,858	1,797	64.9	76.8	73.3	68.8	65.2	63.0
Childbirth	396	346	356	344	396	363	355	306	330	339	9.7	9.2	8.7	9.1	9.3	10.2
Diseases of early infancy	1,575	1,505	1,478	1,454	1,444	1,390	1,160	1,120	998	1,108	36.3	37.4	37.8	37.9	38.7	37.4
Infants under 1 year	968	917	1,085	912	837	808	753	708	702	757	23.0	21.3	23.0	20.5	24.3	21.7
Suicide	8,459	8,277	8,110	8,076	8,133	2,963	2,696	2,465	2,563	2,560	90.7	81.5	92.2	79.7	91.9	81.2
Other violence	1,575	1,506	1,585	1,570	1,774	1,682	1,553	1,516	1,748	1,073	46.3	37.4	37.5	39.1	41.3	46.0
All other causes	1,575	1,506	1,585	1,570	1,774	1,682	1,553	1,516	1,748	1,073	46.3	37.4	37.5	39.1	41.3	46.0

TABLE 16.—Deaths from Certain Principal Causes, with Proportion per 100,000 Total Deaths and Death Rate per 100,000 Population for California: 1908 to 1917—Concluded.

Cause of death	Proportion per 1,000 total deaths					Annual average rate 1908 to 1917	Death rate per 100,000 population									
	1912	1911	1910	1909	1908		1917	1916	1915	1914	1913	1912	1911	1910	1909	1908
All causes	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,380.6	1,385.3	1,352.9	1,367.1	1,358.5	1,444.8	1,422.9	1,365.9	1,361.8	1,343.7	1,412.1
Typhoid fever	12.4	13.0	14.7	14.9	17.3	15.4	7.4	7.1	9.7	13.6	16.3	17.6	17.8	19.9	20.0	24.4
Malarial fever	2.7	3.5	3.5	3.6	2.6	3.2	1.5	1.8	1.6	2.5	2.9	3.9	4.9	4.7	4.9	3.6
Smallpox	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.1	†	0.6	0.6	0.4	0.1	0.3	0.4
Measles	3.6	2.5	6.2	3.8	3.2	5.0	6.2	1.4	4.6	5.5	5.8	5.2	3.4	8.3	5.2	4.6
Scarlet fever	0.9	2.4	2.1	2.2	3.3	2.6	1.6	1.2	1.9	3.3	3.2	3.3	3.3	2.9	3.0	4.7
Whooping cough	5.3	5.2	9.1	7.0	4.8	7.7	6.6	6.7	4.3	11.1	4.8	7.5	7.1	12.8	9.4	6.7
Diphtheria and croup	4.3	4.9	6.7	8.0	12.5	9.5	6.8	9.8	10.9	9.7	7.0	6.1	6.7	9.1	10.8	17.6
Influenza	4.0	3.7	2.3	2.6	4.0	6.1	9.1	9.8	6.3	5.0	8.2	5.6	5.0	3.1	3.6	5.6
Plague	5.1	5.0	6.3	3.5	0.2	0.1	4.6	4.6	†	4.1	0.1	7.2	0.1	0.1	0.1	0.2
Other epidemic diseases	117.6	128.0	128.4	131.0	124.1	168.1	137.6	156.4	164.5	163.9	167.8	167.3	174.9	173.6	173.1	178.1
Tuberculosis of lungs	22.1	22.4	21.9	19.8	19.8	28.0	22.0	22.4	28.0	28.6	32.4	31.5	30.6	29.7	28.5	28.0
Tuberculosis of other organs	5.7	6.0	5.9	5.0	4.1	8.2	10.2	9.4	8.8	8.8	8.3	8.0	8.2	7.9	6.7	5.8
Syphilis and gonorrhea	62.8	59.6	61.2	62.8	35.3	90.6	101.6	97.7	97.2	97.3	98.0	98.4	81.5	82.8	84.3	78.4
Cancer	38.5	39.2	36.0	33.0	33.8	50.2	40.9	48.2	48.8	49.0	56.6	54.8	53.6	48.7	44.3	47.7
Other general diseases	8.4	11.2	11.4	12.8	18.2	14.0	9.3	8.0	9.6	12.0	15.1	11.9	13.3	15.4	17.3	25.8
Meningitis	80.6	82.2	81.2	80.0	77.4	110.6	112.3	91.4	110.4	117.2	124.1	114.7	112.4	109.8	107.5	109.3
Other diseases of nervous system	173.7	162.2	137.0	160.3	145.1	234.1	246.3	272.9	254.0	231.5	236.1	247.2	221.7	212.2	215.3	204.9
Diseases of circulatory system	80.9	78.6	75.3	67.2	77.4	107.9	125.1	116.5	107.3	96.9	110.0	115.1	107.4	101.7	90.2	109.3
Pneumonia and broncho-pneumonia	23.7	23.6	23.9	27.2	27.5	31.0	26.3	23.8	25.5	28.5	32.5	33.8	32.2	32.3	36.5	38.9
Other diseases of respiratory system	28.8	29.9	31.8	31.2	29.5	37.2	30.0	26.9	27.8	32.2	47.5	40.9	40.8	42.9	41.9	41.6
Diarrhea and enteritis, under 2 years	9.8	9.0	8.7	8.7	7.8	12.9	12.6	14.7	14.5	12.7	13.8	13.9	12.3	11.8	11.7	11.0
Diarrhea and enteritis, 2 years and over	53.9	51.9	50.4	51.5	52.6	71.3	73.9	66.4	68.3	69.9	74.7	76.8	71.0	68.1	69.2	74.3
Other diseases of digestive system	39.5	64.2	62.8	60.0	57.4	89.5	104.9	99.2	94.0	88.5	96.5	84.7	87.8	84.9	80.6	81.1
Bright's disease and nephritis	9.9	10.4	9.5	9.7	10.8	13.4	12.8	11.7	12.5	12.5	14.8	14.1	14.3	12.8	13.0	15.3
Childbirth	37.3	34.3	34.9	32.2	35.4	50.2	51.9	51.1	51.8	52.6	54.0	53.1	46.9	47.1	43.3	50.0
Diseases of early infancy	21.9	22.1	21.8	22.7	24.2	31.7	29.6	31.1	36.3	33.0	31.3	31.1	30.2	29.5	30.4	34.2
Suicide	80.4	79.0	76.7	82.1	111.5	112.9	112.9	111.2	108.9	111.3	117.3	114.4	107.9	103.7	111.1	115.9
Other violence	45.8	45.7	46.9	56.4	63.1	63.9	51.9	51.1	53.4	56.8	66.4	65.2	62.4	67.4	75.8	86.0
All other causes	45.8	45.7	46.9	56.4	63.1	63.9	51.9	51.1	53.4	56.8	66.4	65.2	62.4	67.4	75.8	86.0

*Loss than one-tenth of 1 per thousand. †Less than one-tenth of 1 per 100,000.

TABLE 17.—Births and Deaths Classified by Month of Occurrence, with Annual Rates, for California, 1917.

Month of occurrence	Births		Deaths		Rate per 1,000 population			
					Births		Deaths	
	1917	1916	1917	1916	1917	1916	1917	1916
State total.....	52,230	50,638	42,084	39,860	17.2	17.2	13.9	13.5
January	4,328	4,268	4,361	4,171	16.8	17.0	16.9	16.7
February	3,995	3,995	3,669	3,176	17.1	17.6	15.7	14.0
March	4,504	4,174	3,754	3,343	17.5	16.7	14.5	13.4
April	4,344	4,068	3,530	3,167	17.4	16.8	14.1	13.1
May	4,295	4,081	3,347	3,299	16.6	16.3	13.0	13.2
June	4,249	4,092	3,517	3,076	17.0	16.9	14.1	12.7
July	4,560	4,411	3,301	3,134	17.7	17.6	12.8	12.5
August	4,408	4,334	2,975	2,948	17.1	17.3	11.5	11.8
September	4,338	4,140	3,081	2,864	17.4	17.1	12.3	11.8
October	4,466	4,187	3,227	3,014	17.3	16.7	12.5	12.0
November	4,214	4,243	3,413	3,476	16.9	17.5	13.7	14.4
December	4,534	4,645	3,909	4,192	17.6	18.6	15.1	16.7

TABLE 18.—Number and Per Cent of Deaths from Tuberculosis, for Geographic Divisions: 1917 and 1916.*

Geographic division	Deaths		Tuberculosis				Annual average per cent 1906 to 1915
			Number		Per cent		
	1917	1916	1917	1916	1917	1916	
The state	42,084	39,860	5,457	5,267	13.0	13.2	14.6
Northern California.....	4,333	4,150	467	480	10.8	11.1	11.1
Coast counties	2,119	2,145	235	237	11.1	11.0	11.6
Interior counties	2,214	2,005	232	223	10.5	11.1	10.9
Central California	22,083	20,904	2,500	2,513	11.6	12.0	13.0
San Francisco	7,156	7,163	861	903	11.9	12.6	12.9
Alameda County	3,794	3,570	414	416	10.9	11.7	12.3
Other bay counties.....	1,140	1,057	148	114	13.0	10.8	13.3
Coast counties	2,639	2,608	238	272	9.0	10.4	13.3
Interior counties	7,354	6,506	909	808	12.4	12.4	13.5
Southern California	15,008	14,806	2,430	2,294	15.5	15.5	18.8
Los Angeles (city).....	6,717	6,224	1,000	969	15.8	15.6	18.8
Rest of county.....	3,838	3,814	602	595	15.7	15.6	18.8
Other counties	5,113	4,768	768	730	15.0	15.3	18.8

*For list of counties included in geographic divisions, see Table 1.

TABLE 19.—Deaths from Tuberculosis Classified by Length of Residence in California, with Per Cents, for Geographic Divisions: 1917 and 1916.

Geographic division	Total	Length of residence					Per cent				
		Under 1 year	1 to 9 years	10 years and over	Life	Unknown	Under 1 year	1 to 9 years	10 years and over	Life	Unknown
1917 The state	5,457	305	1,430	1,819	1,532	281	7.2	26.2	33.3	28.1	5.2
Northern California	467	6	62	166	106	37	1.3	13.3	35.5	42.0	7.0
Coast counties	235	1	20	86	109	19	0.4	8.5	36.6	46.4	8.1
Interior counties	232	5	42	80	87	18	2.1	18.1	34.5	37.5	7.8
Central California	2,560	94	486	926	630	124	3.7	19.0	36.2	36.3	4.8
San Francisco	851	26	158	309	320	38	3.0	18.6	36.3	37.6	4.5
Alameda County	414	15	72	152	168	7	3.6	17.4	36.7	40.6	1.7
Other bay counties	148	4	25	47	62	10	2.7	16.9	31.7	41.9	6.8
Coast counties	238	4	33	88	107	6	1.7	13.9	37.0	44.9	2.5
Interior Counties	909	45	198	330	273	63	5.0	21.8	36.3	30.0	6.9
Southern California	2,480	295	882	727	406	120	12.2	36.3	29.9	16.7	4.9
Los Angeles (city)	1,060	109	389	302	171	29	10.3	36.7	34.2	16.1	2.7
Rest of county	602	96	228	163	74	41	15.9	37.9	27.1	12.3	6.8
Other counties	798	90	265	202	161	50	11.7	34.5	26.3	21.0	6.5
1916 The state	5,267	280	1,416	1,695	1,509	367	5.3	26.9	32.2	28.6	7.0
Northern California	400	12	54	159	180	46	2.6	11.7	34.6	41.1	10.0
Coast counties	237	2	24	77	113	21	0.8	10.1	32.5	47.7	8.9
Interior counties	223	10	30	82	76	25	4.5	13.4	36.8	34.1	11.2
Central California	2,513	61	465	865	958	164	2.5	18.5	34.4	38.1	6.5
San Francisco	903	24	177	307	347	48	2.7	19.6	34.0	38.4	5.3
Alameda County	416	12	66	157	173	8	2.9	15.9	37.7	41.6	1.9
Other bay counties	114	2	19	28	52	13	1.7	16.7	24.6	45.6	11.4
Coast counties	272	8	43	88	121	12	2.9	15.8	32.4	44.5	4.4
Interior counties	808	15	160	285	265	83	1.8	19.8	35.3	32.8	10.3
Southern California	2,294	207	897	671	362	157	9.0	39.1	29.3	15.8	6.8
Los Angeles (city)	960	86	407	314	127	35	8.9	42.0	32.4	13.1	3.6
Rest of county	506	60	223	163	92	57	10.1	37.5	27.4	15.4	9.6
Other counties	730	61	267	194	143	65	8.3	36.6	26.6	19.6	8.0

TABLE 20.—Deaths from Tuberculosis Classified by Length of Residence (in Months), with Per Cents, for Southern California: 1917 and 1916.

Geographic division	Length of residence									
	Total under 1 year		Under 1 month		1 to 2 months		3 to 5 months		6 to 11 months	
	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916
Numbers—										
Southern California	295	207	45	29	76	43	77	63	97	72
Los Angeles (city)	109	86	26	16	23	19	29	22	31	29
Rest of county	96	60	7	7	28	10	24	23	37	20
Other counties	90	61	12	6	25	14	24	18	29	23
Per cents—										
Southern California	12.2	9.0	1.9	1.3	3.1	1.9	3.2	2.7	4.0	3.1
Los Angeles (city)	10.3	8.9	2.5	1.6	2.2	2.0	2.7	2.3	2.0	3.0
Rest of county	15.9	10.1	1.2	1.2	4.6	1.7	4.0	3.9	6.1	3.3
Other counties	11.7	8.3	1.6	0.8	3.2	1.9	3.1	2.5	3.8	3.1

TABLE 21.—Number and Per Cent of Deaths from Tuberculosis Among Decedents Classified by Length of Residence in California, for Territory North and South of Tehachapi: 1917 and 1916.

Length of residence	Deaths		Tuberculosis			
			Number		Per cent	
	1917	1916	1917	1916	1917	1916
California	42,084	39,880	5,457	5,267	13.0	13.2
Under 1 year.....	1,998	1,483	395	280	20.3	18.9
1 to 9 years.....	7,330	7,172	1,430	1,416	19.5	19.7
10 years and over.....	18,933	17,783	1,819	1,665	9.6	9.5
Life.....	11,210	10,301	1,532	1,509	12.7	14.8
Unknown.....	2,723	3,221	281	367	10.3	11.4
North of Tehachapi.....	36,416	25,054	3,027	2,973	11.5	11.9
Under 1 year.....	644	538	100	73	15.5	13.6
1 to 9 years.....	2,971	2,880	548	519	18.4	18.3
10 years and over.....	13,011	12,274	1,002	1,024	8.4	8.2
Life.....	8,044	7,398	1,136	1,147	14.0	15.5
Unknown.....	1,746	2,019	161	210	9.2	10.4
South of Tehachapi.....	15,668	14,806	2,430	2,294	15.5	15.5
Under 1 year.....	1,254	945	265	207	23.5	21.9
1 to 9 years.....	4,349	4,342	882	897	20.3	20.7
10 years and over.....	5,922	5,509	727	671	12.3	12.2
Life.....	3,166	2,808	406	392	12.8	12.9
Unknown.....	977	1,202	120	157	12.3	13.1

TABLE 22.—Number and Per Cent of Deaths Occurring Each Month from Tuberculosis, for California: 1917 and 1916.

Month	Deaths		Tuberculosis				Annual average Per cent: 1911 to 1915
			Number		Per cent		
	1917	1916	1917	1916	1917	1916	
State totals	42,084	39,880	5,457	5,267	13.0	13.2	14.3
January	4,361	4,171	554	566	12.7	13.6	14.0
February	3,669	3,176	498	492	13.6	15.5	15.4
March	3,754	3,343	558	492	14.9	14.7	16.1
April	3,530	3,167	520	455	14.7	14.4	15.8
May	3,347	3,299	455	453	13.6	13.7	15.8
June	3,517	3,076	440	405	12.5	13.2	14.6
July	3,301	3,134	433	396	13.1	12.6	14.0
August	2,975	2,948	305	360	12.3	12.5	12.2
September	3,481	2,864	338	346	11.0	12.1	13.6
October	3,227	3,014	381	375	11.8	12.4	12.9
November	3,413	3,476	395	405	11.6	11.7	12.9
December	3,909	4,192	488	513	12.5	12.2	13.3

TABLE 23.—Deaths from Certain Principal Causes Classified by Sex, with Per Cents, For California: 1917 and 1916.

Cause of death	Deaths						Per cent male		Per cent female	
	Total		Male		Female					
	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916
All causes	42,084	39,960	25,579	24,912	16,505	15,658	60.8	60.7	39.2	39.3
Typhoid fever	225	208	158	137	67	71	70.2	65.9	29.8	34.1
Malarial fever	47	54	32	38	15	16	68.1	70.4	31.9	29.6
Smallpox	13	12	8	8	5	4	61.5	66.7	38.5	33.3
Measles	188	41	98	25	90	16	52.1	61.0	47.9	39.0
Scarlet fever	49	34	28	21	21	13	57.1	61.8	42.9	38.2
Whooping-cough	200	197	86	82	112	115	44.0	41.6	56.0	58.4
Diphtheria and croup	207	290	121	156	86	134	58.5	53.8	41.5	46.2
Influenza	277	289	140	139	137	150	50.5	48.1	49.5	51.9
Other epidemic diseases	141	135	76	74	65	61	53.9	54.8	46.1	45.2
Tuberculosis of lungs	4,788	4,618	3,221	3,074	1,567	1,534	67.8	66.7	32.7	33.3
Tuberculosis of other organs	669	659	374	379	295	290	55.9	57.5	44.1	42.5
Syphilis and gonorrhoea	309	276	216	190	98	86	69.9	68.8	30.1	31.2
Cancer	3,085	2,879	1,459	1,335	1,626	1,544	47.3	46.4	52.7	53.6
Other general diseases	1,515	1,421	879	835	636	586	58.0	58.8	42.0	41.2
Meningitis	282	236	176	136	106	100	62.4	57.6	37.6	42.4
Other diseases of nervous system	3,413	2,692	1,918	1,544	1,496	1,148	56.2	57.4	43.8	42.6
Diseases of circulatory system	7,483	8,040	4,535	4,818	2,948	3,222	60.6	59.9	39.4	40.1
Pneumonia and broncho-pneumonia	3,799	3,432	2,319	2,067	1,480	1,345	61.0	60.8	39.0	39.2
Other diseases of respiratory system	800	702	499	392	301	310	62.4	55.8	37.6	44.2
Diarrhea and enteritis, under two years	910	792	509	427	401	365	55.9	53.9	44.1	46.1
Diarrhea and enteritis, two years and over	384	434	231	251	153	183	60.2	57.8	39.8	42.2
Other diseases of digestive system	2,246	1,956	1,355	1,191	891	765	60.3	60.9	39.7	39.1
Bright's disease and nephritis	3,188	2,922	1,933	1,795	1,255	1,127	60.6	61.4	39.4	38.6
Childbirth	389	346			389	346			100.0	100.0
Diseases of early infancy	1,575	1,506	878	863	697	642	55.7	57.3	44.3	42.7
Suicide	898	917	710	740	188	177	79.1	80.7	20.9	19.3
Other violence	3,429	3,277	2,712	2,645	717	632	79.1	80.7	20.9	19.3
All other causes	1,575	1,506	906	820	669	686	57.5	54.4	42.5	45.6

TABLE 24.—Deaths from Certain Principal Causes Classified by Race, with Per Cent White, for California: 1917 and 1916.

Cause of death	Deaths						Per cent white
	Total	White	Negro	Indian	Chinese	Japanese	
1917— All causes	42,064	39,568	622	166	818	910	94.0
Typhoid fever	225	188	5	3	4	25	83.6
Malarial fever	47	43	1	1	1	1	91.5
Smallpox	13	13	—	—	—	—	100.0
Measles	188	179	2	2	2	3	95.2
Scarlet fever	49	46	1	—	—	2	93.9
Whooping-cough	300	188	1	2	2	12	91.5
Diphtheria and croup	207	202	—	—	2	3	97.6
Influenza	277	270	1	—	2	4	97.5
Other epidemic diseases	141	126	2	—	4	9	89.4
Tuberculosis of lungs	4,788	4,352	128	42	172	94	90.9
Tuberculosis of other organs	669	566	18	12	10	63	84.6
Syphilis and gonorrhea	309	272	11	3	17	6	88.0
Cancer	3,065	2,986	27	4	45	23	98.8
Other general diseases	1,515	1,461	21	2	16	15	96.4
Meningitis	992	900	2	—	5	15	92.2
Other diseases of nervous system	3,413	3,316	44	5	35	13	97.2
Diseases of circulatory system	7,483	7,221	96	12	126	28	98.5
Pneumonia and broncho-pneumonia	3,799	3,537	63	21	78	100	98.1
Other diseases of respiratory system	800	750	14	1	20	15	98.8
Diarrhea and enteritis, under two years	910	819	7	9	9	66	91.0
Diarrhea and enteritis, two years and over	884	349	6	2	5	22	90.9
Other diseases of digestive system	2,246	2,110	27	2	49	36	93.9
Bright's disease and nephritis	3,188	3,055	39	5	68	21	96.8
Childbirth	389	347	12	1	2	27	89.2
Diseases of early infancy	1,575	1,428	30	4	12	101	90.7
Suicide	948	845	3	3	12	25	94.1
Other violence	3,429	3,168	33	19	99	110	92.4
All other causes	1,575	1,476	26	11	21	39	93.7
1916— All causes	39,860	37,391	624	179	727	739	94.3
Typhoid fever	266	191	2	1	1	13	91.8
Malarial fever	54	45	—	1	4	4	83.3
Smallpox	12	12	—	—	—	—	100.0
Measles	41	37	1	2	—	1	91.2
Scarlet fever	34	33	—	—	1	—	97.1
Whooping cough	197	146	5	—	—	6	94.4
Diphtheria and croup	291	277	—	1	5	7	95.5
Influenza	289	279	3	1	—	6	96.5
Other epidemic diseases	135	126	1	3	1	4	93.3
Tuberculosis of lungs	4,666	4,173	150	44	160	81	90.6
Tuberculosis of other organs	659	579	18	9	11	42	87.9
Syphilis and gonorrhea	276	241	13	—	11	11	87.3
Cancer	2,879	2,786	30	6	44	13	96.8
Other general diseases	1,421	1,379	15	3	14	10	96.5
Meningitis	228	212	5	—	2	19	89.8
Other diseases of nervous system	2,602	2,597	4	8	29	18	96.5
Diseases of circulatory system	8,049	7,772	106	9	143	30	96.4
Pneumonia and broncho-pneumonia	3,422	3,231	56	25	66	80	97.1
Other diseases of respiratory system	702	648	11	6	14	11	94.0
Diarrhea and enteritis, under two years	732	671	1	5	5	66	91.5
Diarrhea and enteritis, two years and over	434	282	11	2	11	17	89.6
Other diseases of digestive system	2,146	2,061	22	6	38	39	94.4
Bright's disease and nephritis	2,122	2,066	22	7	57	21	95.3
Childbirth	404	354	4	3	1	14	93.4
Diseases of early infancy	1,501	1,370	10	6	10	85	92.6
Suicide	948	866	5	2	15	24	94.7
Other violence	3,429	3,168	33	19	63	93	92.4
All other causes	1,575	1,476	16	12	19	34	93.7

TABLE 25.—White Decedents Dying from Certain Principal Causes, with Per Cents, for California: 1917 and 1916.

Cause of death	Total	White decedents				Per cent			
		Born in California	Born in other states	Foreign born	Unknown	Born in California	Born in other states	Foreign born	Unknown
1917—All causes	39,568	10,249	15,832	12,443	1,044	25.9	40.0	31.5	2.6
Typhoid fever	188	74	56	56	2	39.3	29.8	29.8	1.1
Malarial fever	43	19	18	4	2	44.2	41.9	9.3	4.6
Smallpox	13	5	3	4	1	38.4	23.1	30.8	7.7
Measles	179	143	27	7	2	79.9	15.1	8.9	1.1
Scarlet fever	46	38	6	2		82.6	13.0	4.4	
Whooping-cough	183	169	10	4		92.3	5.5	2.2	
Diphtheria and croup	202	163	30	8	1	80.7	14.8	4.0	0.5
Influenza	270	51	134	81	4	18.9	49.6	30.0	1.5
Other epidemic diseases	126	51	45	27	3	40.5	35.7	21.4	2.4
Tuberculosis of lungs	4,352	1,054	1,720	1,501	77	24.2	39.5	34.5	1.8
Tuberculosis of other organs	566	322	149	92	3	56.9	26.3	16.3	0.5
Syphilis and gonorrhea	272	102	89	72	9	37.5	32.7	26.5	3.3
Cancer	2,986	338	1,458	1,164	26	11.3	48.8	39.0	0.9
Other general diseases	1,461	323	616	474	48	22.1	42.2	32.4	3.3
Meningitis	280	157	65	37	1	60.4	25.0	14.2	0.4
Other diseases of nervous system	3,316	436	1,704	1,103	73	13.1	51.4	33.3	2.2
Diseases of circulatory system	7,221	630	3,635	2,771	176	8.9	50.3	38.4	2.4
Pneumonia and broncho-pneumonia	3,537	1,215	1,163	1,076	83	34.4	32.0	30.4	2.8
Other diseases of respiratory system	750	155	313	277	5	20.7	41.7	36.9	0.7
Diarrhea and enteritis, under two years	819	772	33	12	2	94.3	4.0	1.5	0.2
Diarrhea and enteritis, two years and over	349	149	105	91	4	42.7	30.1	26.1	1.1
Other diseases of digestive system	2,110	545	853	692	30	25.9	40.4	32.3	1.4
Bright's disease and nephritis	3,055	422	1,548	1,038	47	13.8	50.7	34.0	1.5
Childbirth	847	104	130	111	2	30.0	37.4	32.0	0.6
Diseases of early infancy	1,428	1,428				100.0			
Suicide	845	145	302	298	106	17.2	35.7	34.7	12.4
Other violence	3,168	790	1,024	1,038	316	24.9	32.3	32.8	10.0
All other causes	1,476	440	596	418	22	29.8	40.4	28.3	1.5
1916—All causes	37,591	9,469	14,991	12,148	983	25.2	39.9	32.3	2.6
Typhoid fever	191	71	66	47	7	37.2	34.5	24.6	3.7
Malarial fever	45	18	18	9		40.0	40.0	20.0	
Smallpox	12	3	2	6	1	25.0	16.7	50.0	8.3
Measles	37	34	2	1		91.9	5.4	2.7	
Scarlet fever	33	27	4	2		81.8	12.1	6.1	
Whooping-cough	186	17.5	8	3		94.1	4.3	1.6	
Diphtheria and croup	277	224	37	15	1	80.9	13.3	5.4	0.4
Influenza	279	36	155	82	6	12.9	55.6	29.4	2.1
Other epidemic diseases	126	48	43	32	3	38.1	34.1	25.4	2.4
Tuberculosis of lungs	4,173	1,058	1,651	1,385	79	25.3	39.6	33.2	1.9
Tuberculosis of other organs	579	328	132	109	10	56.7	22.8	18.8	1.7
Syphilis and gonorrhea	241	90	63	77	11	37.3	26.1	32.1	4.6
Cancer	2,786	318	1,385	1,051	32	11.4	49.7	37.7	1.2
Other general diseases	1,379	282	606	448	44	20.4	43.9	32.5	3.2
Meningitis	212	147	43	20	2	69.3	20.3	9.4	1.0
Other diseases of nervous system	2,597	340	1,333	879	45	13.1	51.3	33.9	1.7
Diseases of circulatory system	7,752	687	3,834	3,067	104	8.9	49.4	39.6	2.1
Pneumonia and broncho-pneumonia	3,203	1,048	1,044	1,034	77	32.7	32.6	32.3	2.4
Other diseases of respiratory system	660	132	254	267	7	20.0	38.5	40.4	1.1
Diarrhea and enteritis, under two years	717	679	21	15	2	94.7	2.9	2.1	0.3
Diarrhea and enteritis, two years and over	393	121	135	131	6	30.8	34.4	33.3	1.5
Other diseases of digestive system	1,851	473	748	608	22	25.6	40.4	32.8	1.2
Bright's disease and nephritis	2,785	344	1,438	971	32	12.4	51.6	34.9	1.1
Childbirth	324	100	142	82		30.9	43.8	25.3	
Diseases of early infancy	1,385	1,378	5	2		99.5	0.4	0.1	
Suicide	868	124	313	314	117	14.3	36.0	36.2	13.5
Other violence	3,075	741	943	1,008	295	24.1	30.7	35.6	9.6
All other causes	1,425	443	567	395	20	31.1	39.8	27.7	1.4

TABLE 26.—Deaths from Certain Principal Causes, Classified by Age Periods, for California: 1917 and 1916.

Cause of death	Deaths										
	All ages	Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over	Total
1917—All causes	42,064	4,081	1,701	1,220	2,172	3,734	4,544	5,232	5,902	13,436	
Typhoid fever	225	2	8	32	48	50	35	37	12	8	
Malarial fever	47	5	3	5	1	7	5	6	3	12	
Smallpox	13		2	2	1	1	1	2	3	1	
Measles	188	85	90	26	13	14	5	2	2	1	
Scarlet fever	49		20	11	15	2		1			
Whooping-cough	200	114	81	5							
Diphtheria and croup	207	11	100	82	5	3	5			1	
Influenza	277	17	13	4	3	8	12	13	28	179	
Other epidemic diseases	141	36	20	3	4	8	12	14	17	27	
Tuberculosis of lungs	4,788	22	45	120	27	1,197	1,125	712	490	350	
Tuberculosis of other organs	669	61	164	92	94	85	69	51	33	20	
Syphilis and gonorrhea	300	68	8	3	11	36	62	58	36	27	
Cancer	3,085	1	4	9	19	99	301	503	854	1,255	
Other general diseases	1,515	42	27	92	81	134	185	245	290	416	
Meningitis	282	51	73	42	34	26	27	12	10	7	
Other diseases of nervous system	3,413	32	44	44	65	152	282	488	674	1,632	
Diseases of circulatory system	7,483	7	15	88	99	240	471	814	1,346	4,403	
Pneumonia and broncho-pneumonia	3,790	580	324	106	154	212	319	421	453	1,221	
Other diseases of respiratory system	800	74	42	18	22	43	40	60	98	304	
Diarrhea and enteritis, under two years	910	742	168								
Diarrhea and enteritis, two years and over	384		132	25	7	16	33	33	33	105	
Other diseases of digestive system	2,246	142	72	105	126	201	290	381	343	587	
Bright's disease and nephritis	3,188	18	21	51	67	130	277	479	657	1,488	
Childbirth	389				91	186	109	3			
Diseases of early infancy	1,576	1,575									
Suicide	898				85	192	203	194	106	118	
Other violence	3,429	78	108	230	368	623	591	510	364	467	
All other causes	1,575	359	27	25	32	60	86	101	101	775	
1916—All causes	39,800	3,679	1,507	1,026	2,016	3,551	4,367	5,089	5,718	12,907	
Typhoid fever	208	2	12	24	56	41	34	24	11	5	
Malarial fever	54	6	10	1	3	4	8	5	5	12	
Smallpox	12	1	5			1	2	2		1	
Measles	41	6	27	5	1	1	1				
Scarlet fever	34	4	14	11	3	2					
Whooping-cough	197	126	66	2		1	1		1		
Diphtheria and croup	290	15	133	120	4	5	7	4	2		
Influenza	289	18	9	5	4	3	10	14	35	201	
Other epidemic diseases	135	21	16	6	4	12	9	14	16	37	
Tuberculosis of lungs	4,608	18	49	113	639	1,181	1,051	714	491	352	
Tuberculosis of other organs	699	64	161	89	83	90	68	50	32	32	
Syphilis and gonorrhea	276	65	13	1	22	43	46	43	29	14	
Cancer	2,879	2	12	5	17	96	302	505	734	1,116	
Other general diseases	1,421	19	24	64	50	109	200	276	287	392	
Meningitis	236	63	51	43	22	16	17	11	10	3	
Other diseases of nervous system	2,692	24	46	23	55	117	270	416	500	1,201	
Diseases of circulatory system	8,040	10	24	81	133	247	490	901	1,463	4,661	
Pneumonia and broncho-pneumonia	3,432	531	269	85	102	182	269	360	425	1,200	
Other diseases of respiratory system	702	56	33	5	20	25	36	79	90	356	
Diarrhea and enteritis, under two years	702	649	143								
Diarrhea and enteritis, two years and over	434		102	19	11	24	37	40	54	158	
Other diseases of digestive system	1,956	81	66	86	129	214	281	280	317	458	
Bright's disease and nephritis	2,922	9	11	28	63	119	254	435	624	1,507	
Childbirth	346				100	155	81				
Diseases of early infancy	1,505	1,505									
Suicide	917				77	175	190	221	151	94	
Other violence	3,277	46	184	187	377	627	591	489	329	467	
All other causes	1,506	338	27	23	42	71	93	98	92	722	

TABLE 27.—Per Cent Distribution, by Age Periods, of Deaths from Certain Principal Causes, for California: 1917 and 1916.

Cause of death	Per cent of deaths									
	Under 1 year		1 to 4 years		5 to 14 years		15 to 24 years		25 to 34 years	
	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916
All causes	9.7	9.2	4.0	3.8	2.9	2.6	5.2	5.1	8.9	8.9
Typhoid fever	0.9	1.0	3.6	5.8	14.2	11.5	21.3	26.4	22.2	19.7
Malarial fever	10.7	11.1	6.4	18.5	10.6	1.8	2.1	5.6	14.9	7.4
Smallpox		8.3	15.4	41.7	15.4		7.7		7.7	8.3
Measles	18.6	14.6	47.9	65.9	13.8	12.2	6.9	2.5	7.4	2.4
Scarlet fever		11.8	40.8	41.2	22.5	32.3	30.6	8.8	4.1	5.9
Whooping-cough	57.0	64.0	40.5	35.5	2.5	1.0				0.5
Diphtheria and croup	5.3	5.2	48.3	45.8	39.6	41.4	2.4	1.4	1.5	1.7
Influenza	6.1	6.2	4.7	3.1	1.5	1.7	1.1	1.4	2.9	1.0
Other epidemic diseases	25.5	15.6	14.2	11.8	2.1	4.4	2.8	3.0	5.7	8.9
Tuberculosis of lungs	0.5	0.4	0.9	1.1	2.5	2.4	15.2	13.9	25.0	25.6
Tuberculosis of other organs	9.1	9.7	24.5	24.4	13.8	13.5	14.1	12.6	12.7	12.1
Syphilis and gonorrhea	22.0	23.5	2.6	4.7	1.0	0.3	3.6	8.0	11.6	15.6
Cancer	*	0.1	0.1	0.4	0.3	0.2	0.6	0.6	3.2	3.3
Other general diseases	2.8	1.3	1.8	1.7	6.1	4.5	5.3	5.5	8.8	7.7
Meningitis	18.1	26.7	25.9	21.6	14.9	18.2	12.1	9.3	9.2	6.8
Other diseases of nervous system	0.9	0.9	1.3	1.7	1.3	0.9	1.9	2.0	4.5	4.3
Diseases of circulatory system	0.1	0.1	0.2	0.3	1.2	1.0	1.3	1.6	3.2	3.1
Pneumonia and broncho-pneumonia	15.5	15.5	8.5	7.8	2.8	2.5	4.1	3.0	5.6	5.3
Other diseases of respiratory system	9.3	8.0	5.3	4.7	2.3	0.7	2.7	2.8	5.4	3.6
Diarrhea and enteritis, under two years										
Diarrhea and enteritis, two years and over	81.5	81.9	18.5	18.1						
Other diseases of digestive system	6.3	4.1	3.2	3.4	4.7	4.4	5.6	6.6	8.9	10.9
Bright's disease and nephritis	0.6	0.3	0.6	0.4	1.6	1.0	2.1	2.1	4.1	4.1
Childbirth							23.4	28.9	47.8	44.8
Diseases of early infancy	100.0	100.0								
Suicide							9.5	8.4	21.4	19.1
Other violence	2.3	1.4	5.8	5.6	6.7	5.7	10.7	11.5	18.2	19.1
All other causes	22.8	22.5	1.7	1.8	1.6	1.5	2.0	2.8	4.4	4.7

Cause of death	Per cent of deaths							
	35 to 44 years		45 to 54 years		55 to 64 years		65 years and over	
	1917	1916	1917	1916	1917	1916	1917	1916
All causes	10.8	10.9	12.4	12.8	14.2	14.3	31.9	32.4
Typhoid fever	15.6	16.4	13.3	11.5	5.3	5.3	3.6	2.4
Malarial fever	10.6	14.8	12.8	9.3	6.4	9.3	25.5	22.2
Smallpox	7.7	16.7	15.4	16.7	23.1		7.6	8.3
Measles	2.7	2.4	1.1		1.1		0.5	
Scarlet fever			2.0					
Whooping-cough		0.5				0.5		
Diphtheria and croup	2.4	2.4		1.4		0.7	0.5	
Influenza	4.3	3.5	4.7	4.8	10.1	8.7	64.6	69.6
Other epidemic diseases	8.5	6.7	9.9	10.4	12.1	11.8	19.2	27.4
Tuberculosis of lungs	23.5	22.8	14.9	15.5	10.2	10.7	7.3	7.6
Tuberculosis of other organs	10.3	10.3	7.6	7.6	4.9	4.9	8.0	4.9
Syphilis and gonorrhea	20.1	16.7	18.8	15.6	11.6	10.5	8.7	5.1
Cancer	9.8	10.5	19.2	20.7	27.7	25.5	39.1	38.7
Other general diseases	12.2	14.1	16.2	19.4	19.7	20.2	27.1	27.6
Meningitis	9.6	7.2	4.2	4.7	3.5	4.2	2.5	1.3
Other diseases of nervous system	8.3	10.0	14.3	15.5	19.7	18.6	47.8	46.1
Diseases of circulatory system	6.3	6.1	10.9	11.2	13.0	13.6	58.8	58.0
Pneumonia and broncho-pneumonia	8.4	7.8	11.1	10.5	11.9	12.4	32.1	35.2
Other diseases of respiratory system	5.0	5.1	8.6	11.3	12.2	12.8	49.2	51.0
Diarrhea and enteritis, under two years								
Diarrhea and enteritis, two years and over	8.6	8.5	8.6	11.3	8.6	12.5	27.3	31.8
Other diseases of digestive system	12.9	14.4	17.0	14.8	15.3	16.2	26.1	25.2
Bright's disease and nephritis	8.7	8.7	15.0	14.9	20.6	21.3	46.7	47.2
Childbirth	28.0	26.3	0.8					
Diseases of early infancy								
Suicide	22.6	21.7	21.6	24.1	11.8	16.5	18.1	10.3
Other violence	17.2	18.0	14.9	14.9	10.6	10.1	13.6	13.7
All other causes	5.5	6.2	6.4	6.5	6.4	6.1	49.2	47.0

*Less than one-tenth of 1 per cent.

TABLE 28.—Median Age at Death, for Geographic Divisions: 1917 and 1916.

Geographic division	Median age (half older and half younger)	
	1917	1916
The state	52.9	52.5
Northern California	56.8	57.2
Coast counties	58.0	58.1
Interior counties	55.4	56.4
Central California	51.3	51.7
San Francisco	51.2	50.2
Alameda County	54.8	56.6
Other bay counties	50.1	48.1
Coast counties	57.8	57.9
Interior counties	47.5	48.4
Southern California	51.8	52.5
Los Angeles (city)	50.7	50.7
Rest of county	60.6	60.0
Other counties	47.0	49.0

TABLE 29.—Median Age at Death from Selected Causes, for California: 1917 and 1916.

Sex and cause of death	Median age (half older and half younger)	
	1917	1916
Males—All causes	52.0	52.5
Typhoid fever	29.4	27.3
Other epidemic diseases	4.7	6.9
Tuberculosis	35.9	36.3
Cancer	61.2	63.6
Diseases of—		
Nervous system	62.2	60.9
Circulatory system	68.8	68.2
Respiratory system	52.4	55.3
Digestive system	36.1	37.3
Bright's disease and nephritis	63.5	63.7
Suicide	43.4	45.4
Other violence	39.5	38.3
All other causes	30.8	31.2

REPORT OF THE STATE BOARD OF HEALTH.

TABLE 30.—Deaths from Selected Causes of Males and Females 15 Years and Over, Classified by Marital Condition, for California: 1917 and 1916.

Cause of death	Deaths 15 years and over					
	Males			Females		
	Total	Single	Married	Widowed	Divorced	Unknown
1917.						
All causes	21,606	6,768	9,826	3,410	487	1,265
Typhoid fever	134	66	57	6	-----	5
Other epidemic diseases	243	87	100	47	1	8
Tuberculosis	3,838	1,227	1,271	209	66	160
Cancer	1,451	324	862	251	27	47
Disease of nervous system	1,985	440	992	867	50	96
Disease of circulatory system	4,451	969	2,156	1,077	90	109
Disease of respiratory system	2,190	708	909	414	41	118
Disease of digestive system	1,314	380	680	167	27	51
Bright's disease and nephritis	1,771	419	904	367	38	65
Suicide	710	274	292	47	23	104
Other violence	2,397	950	914	153	44	350
All other causes	1,624	475	722	315	30	82
Total	20,792	6,834	9,476	3,286	420	1,237
1916.						
All causes	20,792	6,834	9,476	3,286	420	1,237
Typhoid fever	116	53	49	8	5	6
Other epidemic diseases	230	60	94	40	2	15
Tuberculosis	3,218	1,497	1,243	256	49	160
Cancer	1,328	292	743	247	23	38
Disease of nervous system	1,544	371	806	280	38	60
Disease of circulatory system	4,751	1,061	2,351	1,089	86	121
Disease of respiratory system	1,946	592	814	374	38	128
Disease of digestive system	1,237	386	619	173	30	49
Bright's disease and nephritis	1,771	419	904	349	47	52
Suicide	740	243	348	60	21	110
Other violence	2,393	951	982	160	54	306
All other causes	1,518	430	699	307	31	75
Total	20,792	6,834	9,476	3,286	420	1,237
Single	1,444	1,444	5,934	5,237	217	64
Married	1,012	1,012	5,274	5,274	204	197
Widowed	84	84	1	1	-----	-----
Divorced	27	27	8	8	-----	-----
Unknown	1	1	-----	-----	-----	-----

TABLE 31.—Per Cent Distribution, by Marital Condition, of Deaths from Selected Causes of Males and Females 15 Years and Over, for California: 1917 and 1916.

Cause of death	Per cent of decedents 15 years and over																			
	Males					Females														
	Single	Married	Widowed	Divorced	Unknown	Single	Married	Widowed	Divorced	Unknown										
1817	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917	1916	1917				
All causes	31.2	30.5	45.3	45.6	15.7	15.8	2.0	2.1	5.8	6.0	12.1	11.2	46.3	46.0	39.4	40.6	1.5	1.7	0.7	0.5
Typhoid fever	49.3	45.7	42.5	42.2	4.5	2.6		4.3	3.7	5.2	18.4	31.5	73.5	59.3	6.1	9.2	2.0			
Other epidemic diseases	35.8	27.3	41.2	42.7	19.3	22.3	0.4	0.9	3.3	6.8	16.0	4.9	40.2	39.0	43.3	53.6	0.5	1.3		
Tuberculosis	48.8	46.6	38.1	38.6	6.3	8.0	2.0	1.5	4.8	5.3	27.6	25.9	57.3	57.9	12.9	13.5	1.7	2.2	0.5	0.5
Cancer	22.3	19.8	55.3	56.5	17.3	18.7	1.9	2.1	3.2	2.9	9.2	8.7	52.7	53.4	36.0	33.1	1.9	2.3	0.2	0.5
Diseases of nervous system	22.7	24.0	51.3	52.2	18.4	16.8	2.6	2.5	5.0	4.5	9.0	8.6	41.1	42.6	47.6	46.4	1.4	1.9	0.9	0.5
Diseases of circulatory system	21.4	22.4	48.1	49.5	24.0	21.9	2.0	1.8	4.5	4.4	7.8	7.4	38.0	34.4	54.3	56.5	1.1	1.1	0.8	0.6
Diseases of respiratory system	32.3	30.4	51.5	41.8	18.9	19.2	1.9	2.0	5.4	6.6	10.4	9.4	37.0	38.5	50.7	50.3	0.8	0.9	1.1	0.6
Diseases of digestive system	29.6	30.7	51.7	49.2	12.7	13.8	2.1	2.4	3.9	3.9	12.2	13.0	50.2	51.1	35.6	33.5	1.3	2.3	0.7	0.1
Bright's diseases and nephritis	24.0	23.7	51.0	51.0	19.5	19.7	2.0	2.7	3.5	2.9	9.2	7.9	45.4	44.2	42.5	46.1	2.0	1.4	0.9	0.4
Selficide	38.6	32.9	38.9	38.9	6.6	9.3	3.2	2.8	14.7	16.1	22.9	23.7	38.0	54.8	10.1	14.1	5.8	5.7	3.2	1.7
Other violence	39.9	40.2	38.1	37.3	6.4	6.8	1.8	2.3	13.8	12.9	16.9	16.9	41.5	41.3	34.2	37.0	3.6	3.4	0.3	1.4
All other causes	29.2	28.7	44.5	44.1	10.4	20.2	1.8	2.1	5.1	4.9	9.4	8.1	57.8	59.3	31.2	31.3	1.1	1.2	0.5	0.1

TABLE 32.—Deaths from Each Specified Disease and Cause of Death, for Ten Minor Geographic Divisions of California: 1917.

Cause of death	The State	Northern California			Central California				Southern California		
		Coast counties	Interior counties	San Francisco	Alameda county	Other bay counties	Coast counties	Interior counties	Los Angeles city	Rest of Los Angeles County	Other counties
ALL CAUSES	42,084	2,119	2,214	7,156	3,794	1,140	2,039	7,354	6,717	3,838	5,113
1. General diseases	11,713	490	585	2,111	967	315	607	1,971	2,096	1,139	1,429
2. Typhoid fever	225	5	16	23	11	4	7	74	30	14	41
3. Relapsing fever											
4. Malaria	47	3	18	1	2						
5. Smallpox	13			7	2		4	20	3		
6. Measles	188		18	37	15	8	7	35	29	8	31
7. Scarlet fever	49	1	1	11	5	5	2	9	8	2	5
8. Whooping cough	200	10	8	28	10	3	12	65	19	11	34
9. (a) Diphtheria	197	6	1	66	18	6	6	35	39	9	11
(b) Croup	10		1	3				4		2	
10. Influenza	277	12	42	8	18	3	19	78	30	31	30
11. Miliary fever											
12. Asiatic cholera											
13. Cholera nostras											
14. Dysentery	54		6	9	4	1	2	14	4	1	13
15. Plague											
16. Yellow fever											
17. Leprosy	6			3							
18. Erysipelas	75	3	4	9	9	3	2	14	21	4	1
19. Other epidemic diseases	6		1	1				2	2		6
20. Purulent infection and septicæmia	98	4	6	7	12	1	14	26	9	11	8
21. Glanders											
22. Anthrax	6	1	1	2			1	1			
23. Rabies			3		2		7	8	5	5	13
24. Tetanus	49	4									
25. Mycoses	2			2							
26. Pellagra	24	2			3			8	3	2	6
27. Beriberi	6						2	1		1	
Tuberculosis											
28. Tuberculosis of the lungs	4,788	194	209	741	360	133	206	778	940	548	671
29. Acute miliary tuberculosis	88	10	7	20	7	1	6	15	9	10	3
30. Tuberculous meningitis	307	18	9	56	32	6	10	58	55	10	40

31. Abdominal tuberculosis	157	15	1	11	9	2	7	385	31	13	30
32. Pott's disease	38	1	2	11	1	3	2	7	3	5	3
33. White swellings	21	1	1	1	1	1	1	1	5	2	10
34. Tuberculosis of other organs	43	1	1	8	5	1	5	7	9	5	2
35. Disseminated tuberculosis	15	1	2	3			2	5	2		
36. Rickets	13					1	1	1	2	1	4
37. Syphilis	298	6	8	101	22	6	11	43	53	13	35
38. Gonococcus infection	11		1	4			1	2	2		1
Cancer.											
39. Cancer* of the buccal cavity	111	10	9	31	9	3	3	13	18	9	6
40. Cancer* of the stomach, liver	1,236	57	62	290	124	31	68	177	186	110	124
41. Cancer* of the peritoneum, intestines, rectum	380	16	21	93	36	9	24	42	59	46	43
42. Cancer* of the female genital organs	429	12	13	96	46	8	24	68	104	34	23
43. Cancer* of the breast	274	7	4	60	28	11	10	33	59	40	22
44. Cancer* of the skin	83	2	3	10	6	3	10	10	20	9	10
45. Cancer* of other or unspecified organs	563	32	19	130	56	13	40	73	108	52	55
46. Other tumors (except of female genital organs)	22	1		4	2		2	1	7	2	3
47. Acute articular rheumatism	103	2	9	20	7	2	6	21	15	10	11
48. Chronic rheumatism and gout	53	6	3	8	4	1	4	5	9	8	5
49. Scurvy	5				2		1	1	1		
50. Diabetes	519	19	30	106	53	15	46	75	86	43	46
51. Exophthalmic goiter	33	3	1	4		1	3	4	10	3	5
52. Addison's disease	15	1	1	4	2		1	2	2	2	
53. Leukemia	78	4	5	20	9	2	1	6	15	12	4
54. Anemia, chlorosis	209	13	4	34	17	9	12	26	38	31	25
55. Other general diseases	23	1		1	7		3		6	1	4
56. Alcoholism (acute or chronic)	240	11	34	24	12	16	15	53	36	8	29
57. Chronic lead poisoning	6	1		2				1		1	1
58. Other chronic occupation poisonings	1			1							
59. Other chronic poisonings	10		1	1				5	2	1	
II. Diseases of the nervous system.											
60. Encephalitis	3,695	242	164	510	318	87	347	621	506	343	537
61. (a) Simple meningitis	35	1	1	6	1	2	2	8	5	3	6
(b) Cerebrospinal meningitis (undefined)	184	10	6	23	12	5	7	53	28	12	28
(c) Cerebrospinal fever	67	2	2	9	9	2	5	10	11	4	13
62. Locomotor ataxia	31		1	13				7	6		
(a) Acute anterior poliomyelitis	65	7	2	10	11	3	5	8	9	3	7
(b) Other diseases of the spinal cord	26	1	5	2	3			3	6	3	3
63. Cerebral hemorrhage, apoplexy	194	8	13	18	15	6	16	29	35	33	21
64. Softening of the brain	2,181	121	80	346	226	56	181	344	300	210	299
65. Other	54	1	4	17	3	2	6	8	5	4	4

*Cancer and other malignant tumors.

TABLE 32.—Deaths from Each Specified Disease and Class of Diseases, for Ten Minor Geographic Divisions of California: 1917—Continued.

Cause of death	The State	Northern California			Central California			Southern California			
		Coast counties	Interior counties	San Francisco	Alameda county	Other Bay counties	Coast counties	Interior counties	Los Angeles city	Rest of Los Angeles County	Other counties
66. Paralysis without specified cause.....	161	13	22	10	9	3	8	23	22	27	24
67. General paralysis of the insane.....	337	45	1	5	10	4	78	53	18	17	106
68. Other forms of mental alienation.....	61	4	2	3	1	1	13	18	9	4	7
69. Epilepsy.....	105	17	7	10	6	1	14	20	10	10	10
70. Convulsions (nonpuerperal).....	3										3
71. Convulsions of infants (under 5 years).....	22		1	2	3	2		4	4		6
72. Chorea.....	2										
73. Neuralgia and neuritis.....	23		2	5				1	3	7	1
74. Other diseases of the nervous system.....	109	10	6	21	7	1	8	23	16	7	10
75. Diseases of the eyes and their annexa.....	5	2						1	1	1	
76. Diseases of the ears.....	30			9	2		2	5	5	5	2
III. Diseases of the circulatory system.....											
77. Pericarditis.....	7,483	436	379	1,166	886	184	599	1,062	1,144	850	759
78. Acute endocarditis.....	62	3	2	11	17		2	10	9	2	6
79. Organic diseases of the heart.....	245	16	9	37	29	6	12	43	39	22	32
80. Angina pectoris.....	5,322	278	291	869	649	131	413	727	816	653	495
81. Diseases of arteries, atheroma, aneurysm, etc.....	231	14	4	41	17	7	22	37	39	22	28
82. Embolism and thrombosis.....	1,473	118	68	184	161	36	135	248	211	135	177
83. Diseases of veins (varices, hemorrhoids, phlebitis, etc.).....	104	4	2	16	11	2	11	11	19	13	15
84. Diseases of the lymphatic system (lymphangitis, etc.).....	10			3	1	1			3	1	1
85. Hemorrhage; other diseases of the circulatory system.....	20	2		5		1	1	3	6	1	1
	16	1	3		1		1	4	2	1	3
IV. Diseases of the respiratory system.....											
86. Diseases of the nasal fossae.....	4,599	269	248	896	435	144	257	882	621	844	513
87. Diseases of the larynx.....	3		1	5	1	1	1	1	1		1
88. Diseases of the thyroid body.....	26		1	3				2	4	2	9
89. Acute bronchitis.....	16		5	42	11	4	7	26	30	9	20
90. Chronic bronchitis.....	148	4	15	43	17	8	20	35	27	23	21
91. Bronchopneumonia.....	220	20	16	331	169	36	76	239	187	84	128
92. (a) Lobar pneumonia.....	1,346	53	46	816	189	66	103	363	290	107	180
92. (b) Pneumonia (undefined).....	1,869	150	106	82	20	10	27	167	22	75	164
93. Pleurisy.....	584	25	56	44	6	4	5	11	24	4	7
93. Pleurisy.....	112	8	4								

TABLE 32.—Deaths from Each Specified Disease and Class of Diseases, for Ten Minor Geographic Divisions of California: 1917—Continued.

Title	Northern California			Central California				Southern California		
	Coast counties	Interior counties	San Francisco	Alameda county	Other bay counties	Coast counties	Interior counties	Los Angeles city	Rest of Los Angeles County	Other counties
Cause of death										
V. Tumor (noncancerous).										
120. Other diseases of the uterus.	67	3	1	11	7	—	—	11	22	5
121. Cysts and other tumors of the ovary.	34	—	—	5	4	1	2	3	7	5
122. Salpingitis and other diseases of female genital organs.	28	2	—	11	2	—	—	5	4	1
123. Nonpuerperal diseases of the breast (excepted).	51	2	—	16	2	2	2	7	13	1
1	1	—	1	—	—	—	—	—	—	—
VII. The puerperal state.										
131. Accidents of pregnancy.	390	12	17	61	36	6	22	89	70	23
132. Puerperal hemorrhage.	117	4	6	16	14	2	8	22	17	8
133. Other accidents of labor.	33	2	1	6	4	—	—	3	5	4
136. Puerperal septicemia.	50	—	5	11	5	1	3	11	8	3
137. Puerperal albuminuria and convulsions.	82	2	3	6	6	2	3	24	19	4
138. Puerperal albuminuria and convulsions.	99	4	2	21	5	1	6	28	20	4
139. Puerperal phlegmasia alba dolens, embolus, sudden death.	5	—	—	1	1	—	—	—	1	—
140. Following childbirth (not otherwise defined).	3	—	—	—	1	—	—	1	—	—
141. Puerperal diseases of the breast.	—	—	—	—	—	—	—	—	—	—
VIII. Diseases of the skin.										
142. Gangrene.	124	8	5	15	10	4	4	22	27	9
143. Furuncle.	54	5	1	8	2	1	3	11	10	5
144. Acute abscess.	18	1	—	1	2	1	—	4	5	1
145. Other diseases of the skin and annexa.	27	1	1	5	1	1	1	7	5	1
145. Other diseases of the skin and annexa.	25	1	3	1	5	1	—	—	7	2
IX. Diseases of the bones.										
146. Diseases of the bones (tuberculosis excepted).	75	2	5	17	2	2	5	17	11	7
147. Diseases of the joints (except tuberculosis and rheumatism).	65	2	5	16	1	2	4	15	8	6
148. Rheumatism.	5	—	—	1	1	—	1	—	1	—
149. Amputations.	2	—	—	—	—	—	—	—	—	—
149. Other diseases of the organs of locomotion.	3	—	—	—	—	—	—	—	—	—
X. Malformations.										
150. (a) Hydrocephalus.	835	12	24	51	40	13	28	65	59	19
(b) Congenital malformation of the heart.	22	—	1	5	8	—	2	6	3	—
(c) Other congenital malformations.	206	7	16	36	24	16	17	42	33	10
(c) Other congenital malformations.	107	5	5	10	13	3	6	17	23	7

1,575	62	204	158	43	104	357	280	916
151.	(a) Premature birth (not stillborn).....	40	96	28	64	223	140	118
	(b) Congenital debility, "atrophy," "marasmus," etc.	17	35	10	10	80	43	55
312	Other diseases peculiar to early infancy.....	271	24	8	18	44	88	15
132.	Lack of care.....	2	2	2	3	10	5	1
153.	XII. Old age.....	39	14	10	31	92	86	84
428		59	14	10	31	92	86	34
428								
4,327	XIII. Affections produced by external causes.....	306	293	177	211	910	610	916
155.	Suicide by poison.....	5	16	7	8	16	41	16
156.	Suicide by asphyxia.....	1	17	1	3	4	26	4
157.	Suicide by hanging or strangulation.....	6	5	2	5	19	8	5
158.	Suicide by drowning.....	8	3	8	4	11	2	4
159.	Suicide by firearms.....	4	10	3	4	11	2	4
160.	Suicide by cutting or piercing instruments.....	26	29	14	21	62	71	29
161.	Suicide by jumping from a high place.....	2	11	6	1	8	12	5
162.	Suicide by crushing.....	1	1	1	1	4	1	1
163.	Other suicides.....	1	2	1	1	3	2	1
164.	Poisoning by food.....	4	1	1	7	12	5	2
165.	Other acute poisonings.....	3	6	1	5	14	11	3
166.	Conflagration.....	4	0	4	6	15	3	2
167.	Burns (conflagration excepted).....	13	27	13	4	38	33	11
168.	Absorption of deleterious gases (conflagration excepted).....	4	66	9	4	2	5	13
169.	Accidental drowning.....	36	40	18	23	7	88	17
170.	Traumatism by firearms.....	9	6	1	1	5	29	3
171.	Traumatism by cutting or piercing instruments.....	2	2					
172.	Traumatism by fall.....	20	98	34	17	21	60	54
173.	Traumatism in mines and quarries.....	6	1			1	24	1
174.	Traumatism by machines.....	9	16	9	2	3	13	1
175.	(a) Railroad accidents and injuries.....	52	21	24	19	20	84	40
	(b) Street car accidents and injuries.....	2	41	9	2	3	7	23
	(c) Automobile accidents and injuries.....	25	78	42	36	28	137	117
	(d) Injuries by other vehicles.....	10	12	7	5	9	45	19
	(e) Landslide, other crushing injuries by animals.....	6	13	1	1	2	4	1
176.	Starvation.....	6	3	1		5	4	1
177.	Excessive cold.....	3				6	13	5
178.	Excess of heat.....	1	3			1	3	2
179.	Lightning.....	5				2	13	5
180.	Electricity (lightning excepted).....	2	5	4	4	1	14	3
49								

*This title includes only deaths under 3 months of age.

TABLE 33.—Deaths from Each Specified Disease and Class of Disease, for Ten Minor Geographic Divisions of California: 1916.

Cause of death	The State	Northern California			Central California			Southern California			
		Coast counties	Interior counties	San Francisco	Alameda county	Other bay counties	Coast counties	Interior counties	Los Angeles city	Rest of Los Angeles County	
ALL CAUSES											
I. General diseases	39,890	2,145	2,005	7,163	3,570	1,057	2,008	6,506	6,224	3,814	4,765
1. Typhoid fever	11,103	503	515	2,053	946	253	626	1,712	1,939	1,153	1,397
2. Typhus fever	208	7	17	16	22	6	13	55	14	18	40
3. Relapsing fever	2							1			
4. Malaria	54		11	4	1		1	28		1	8
5. Smallpox	12				1	2		2	2	1	4
6. Measles	41	3		3	2			10	8	2	13
7. Scarlet fever	34	2	2	8		2	2	11	4	1	2
8. Whooping cough	197	2	6	19	8	5	5	19	41	46	46
9. (a) Diphtheria	286	1	10	132	33	7	16	43	20	7	17
(b) Group	4							1		1	2
10. Influenza	299	21	36	15	19	5	20	67	27	32	47
11. Miliary fever											
12. Asiatic cholera											
13. Cholera nostras											
14. Dysentery	58	7	7	1	3	1	4	17	5	3	10
15. Plague											
16. Yellow fever											
17. Leprosy											
18. Erysipelas	67	3	6	14	6	2	4	12	16	1	3
19. Other epidemic diseases	8	1	1	1	1				1	4	
20. Purulent infection and septicaemia	68	3	3	10	6	2	7	14	8	7	8
21. Glanders	1										1
22. Anthrax	1				1						
23. Rabies	1		1								
24. Tetanus	46	2	1	2	4	2	2	14	13	1	5
25. Mycoses	1										
26. Pellagra	25	2		1				3	5	5	9
27. Beriberi	8			1		1		1			
Tuberculosis.											
28. Tuberculosis of the lungs	4,608	168	194	778	347	93	239	679	875	549	638
29. Acute miliary tuberculosis	86	5	3	20	6	2	2	16	11	7	2
30. Tuberculous meningitis	291	12	11	56	41	12	15	40	45	21	33

TABLE 33.—Deaths from Each Specified Disease and Class of Disease, for Ten Minor Geographic Divisions of California: 1916—Continued.

Cause of death	The State	Northern California			Central California				Southern California		
		Coast counties	Interior counties	San Francisco	Alameda county	Other bay counties	Coast counties	Interior counties	Los Angeles city	Rest of Los Angeles County	Other counties
31. Abdominal tuberculosis	156	14	6	25	10	5	9	35	18	11	23
32. Pott's disease	34	1	1	10	3	1	1	6	5	1	5
33. White swellings	14	1	1	4	2	—	1	2	2	—	1
34. Tuberculosis of other organs	60	5	7	7	6	1	5	9	12	6	11
35. Disseminated tuberculosis	10	1	—	3	1	—	—	1	1	—	3
36. Rickets	13	1	—	7	1	—	—	—	3	—	1
37. Syphilis	270	11	5	71	27	7	5	53	44	15	32
38. Gonococcus infection	6	—	2	1	—	—	1	—	1	—	1
Cancer.											
39. Cancer* of the buccal cavity	109	6	6	37	8	1	5	17	17	7	5
40. Cancer* of the stomach, liver	1,163	61	54	240	124	24	76	147	209	118	110
41. Cancer* of the peritoneum, intestines, rectum	384	16	21	83	40	8	30	46	61	36	43
42. Cancer* of the female genital organs	388	13	10	90	34	8	25	55	77	38	38
43. Cancer* of the breast	291	4	8	55	29	10	8	38	62	29	23
44. Cancer* of the skin	81	6	4	6	5	2	8	15	12	13	10
45. Cancer* of other or unspecified organs	498	23	21	98	46	11	41	65	94	57	45
46. Other tumors (except of female genital organs)	6	2	—	1	1	—	1	—	—	—	1
47. Acute articular rheumatism	105	7	—	20	14	1	5	21	13	5	15
48. Chronic rheumatism and gout	45	5	6	4	2	1	5	4	11	3	4
49. Scurvy	49	1	—	1	—	—	—	—	—	—	—
50. Diabetes	487	27	11	90	42	15	40	60	99	45	49
51. Exophthalmic goitre	42	2	2	9	4	1	2	7	6	5	4
52. Addison's disease	11	—	1	2	1	—	1	2	2	2	—
53. Leucæmia	73	6	2	19	5	1	2	10	13	6	9
54. Anæmia, chlorosis	197	2	6	41	20	1	8	20	43	33	23
55. Other general diseases	177	3	3	2	1	1	1	2	4	2	2
56. Alcoholism (acute or chronic)	200	19	25	37	18	11	16	55	31	11	36
57. Chronic lead poisoning	8	1	1	2	—	—	—	1	1	1	1
58. Other chronic occupation poisonings	—	—	—	—	—	—	—	—	—	—	—
59. Other chronic poisonings	10	—	2	1	—	1	—	3	2	—	—

*Cancer and other malignant tumors.

II. Diseases of the nervous system.

60. Encephalitis	3,928	505	132	397	263	81	302	457	400	267	438
61. (a) Simple meningitis	85	1	1	5	5	1	4	4	8	2	4
(b) Cerebrospinal meningitis (undefined)	161	0	2	21	17	5	6	32	28	11	31
(c) Cerebrospinal fever	60	3	1	5	4	5	2	9	14	4	13
62. Locomotor ataxia	15	2	1	2	1	1	1	8	3		1
63. (a) Acute anterior poliomyelitis	86	5	1	23	6	2	5	10	15	8	14
(b) Other diseases of the spinal cord	24	3	4	4			2	5	4	3	3
64. Cerebral hemorrhage, apoplexy	172	7	6	21	17	4	17	31	25	18	26
65. Softening of the brain	1,533	87	88	237	168	85	125	228	217	160	190
66. Paralysis without specified cause	39	1		11			5	8	5	5	5
67. General paralysis of the insane	184	8	8	5	9	1	16	21	22	20	24
68. Other forms of mental alienation	277	53	3	6	8	2	64	38	11	12	80
69. Epilepsy	72			1	5	16	24	16	16	8	7
70. Convulsions (nonpuerperal)	115	18	7	13	14	3	11	21	8	8	12
71. Convulsions of infants (under 5 years)	3										
72. Chorea	12	5	1	1			2	4	1		2
73. Neuralgia and neuritis	5	1					2	1			1
74. Other diseases of the nervous system	15	1		1			5	3	2	2	5
75. Diseases of the eyes and their annexa	140	11	8	36	6	2	9	25	17	10	16
76. Diseases of the ears	4			1				1			2
III. Diseases of the circulatory system.	23	1	2	4	2		1	7	4		2
77. Pericarditis	8,040	453	418	1,526	894	219	582	1,017	1,203	868	890
78. Acute endocarditis	70	3	2	13	17		5	13	11	4	2
79. Organic diseases of the heart	319	29	23	42	27	15	12	37	55	37	32
80. Angina pectoris	5,556	288	299	1,130	646	154	396	677	822	564	530
81. Diseases of arteries; atheroma, aneurysm, etc.	11	10	11	10	14	2	27	19	45	21	35
82. Embolism and thrombosis	1,741	118	75	281	178	46	137	230	250	208	218
83. Diseases of veins (varicæ, hemorrhoids, phlebitis, etc.)	82	3	5	10	10	1	2	19	13	2	17
84. Diseases of the lymphatic system (lymphangitis, etc.)	23	1	2	6	1	1	2	2	3	2	3
85. Hemorrhage; other diseases of the circulatory system	13		1	3			1	6	1		1
IV. Diseases of the respiratory system.	11		1		1			4	3		2
86. Diseases of the nasal fossæ	4,134	267	285	897	429	112	248	761	549	315	469
87. Diseases of the larynx	17	1		5	1	1	3	4	1	1	1
88. Diseases of the thyroid body	13	1	2	2	1		1	1	2	1	2
89. Acute bronchitis	86	5	4	20	9	1	8	17	10	8	4
90. Chronic bronchitis	295	20	13	40	33	3	19	40	33	32	32
91. Bronchopneumonia	1,302	74	53	303	173	38	67	176	225	88	110

TABLE 33.—Deaths from Each Specified Disease and Cause of Death, for Ten Minor Geographic Divisions of California, 1918 (Continued)

Cause of death	Minor Divisions										Total	
	San Francisco	San Jose	San Diego	San Bernardino	San Luis Obispo	San Bernardino	San Bernardino	San Bernardino	San Bernardino	San Bernardino	San Bernardino	San Bernardino
92. (a) Lobar pneumonia.....	177	112	8	14	44	14	16	47	8	26	27	27
(b) Pneumonia (unspecified).....	50	37	12	11	15	6	4	6	10	162	15	15
93. Pleurisy.....	102	1	1	1	15	1	1	1	1	11	11	11
94. Pulmonary congestion, pulmonary apoplexy.....	5	2	2	2	3	4	1	1	1	16	16	16
95. Gangrene of the lung.....	5				2					3	3	3
96. Asthma.....	106	2	6	6	6	3	3	3	3	24	11	11
97. Pulmonary emphysema.....	6		2		1	1	1				1	1
98. Other diseases of the respiratory system (tuberculosis excepted).....	51	1	1	1	3	2	1	1	1	12	6	6
V. Diseases of the digestive system.....	3,182	133	146	137	146	245	66	129	129	619	341	341
99. Diseases of the mouth and anna.....	50		6	12	4	1		2	2	3	3	3
100. Diseases of the pharynx.....	79	6		1	1					14	13	13
101. Diseases of the esophagus.....	1	2								1	1	1
102. Ulcer of the stomach.....	182	12	10	35	18	18	7	12	12	30	26	26
103. Other diseases of the stomach (cancer excepted).....	120	9	6	5	10	10	5	9	9	21	23	23
Diarrhea.....												
104. Diarrhea and enteritis (under 2 years).....	792	18	24	76	46	46	16	34	34	162	136	136
105. Diarrhea and enteritis (2 years and over).....	434	27	25	44	25	25	11	26	26	24	26	26
106. Ankylostomiasis.....												
107. Intestinal parasites.....	2			1				1	1			
108. Appendicitis and typhitis.....	408	24	17	95	80	7	7	10	10	73	71	71
109. (a) Hernia.....	101	3	3	22	9	1	1	5	5	20	13	13
(b) Intestinal obstruction.....	267	8	14	52	33	7	11	39	39	29	29	29
Other diseases of the intestines.....	56	5	7	8	4	2	2	3	3	6	13	13
110. Acute yellow atrophy of the liver.....	8			2	1					3	1	1
111. Hydatid tumor of the liver.....	1			1								
112. Cirrhosis of the liver.....	416	20	19	127	38	5	5	24	24	67	46	46
113. Biliary calculus.....	89	6	4	14	2	1	1	10	10	17	14	14
114. Other diseases of the liver.....	130	6	7	17	11	1	1	12	12	25	25	25
115. Diseases of the spleen.....	7		1	1	1	1	1	1	1	4	11	11
116. Diseases of the peritoneum (nonpurulent).....	42	6	2	2	1	1	3	7	7	4	11	11
117. Malignant peritonitis (except cancer).....												
118. Other diseases of digestive system (except cancer, tuberculosis).....	20	1	1	5	1	1		1	1	1	1	1

VI. Diseases of genito-urinary system.....										
119. Acute nephritis	3,478	192	145	636	263	64	218	518	648	417
120. Bright's disease	161	12	4	38	12	5	9	21	33	15
121. Chyuria	2,761	152	109	558	210	48	161	424	384	358
122. Other diseases of the kidneys and annexa	75	4	5	20	4	1	7	10	14	7
123. Calculi of the urinary passages.....	15	1	1	4	2	1	3	2	1	1
124. Diseases of the bladder.....	121	18	6	10	6	3	15	16	19	10
125. Diseases of the urethra, urinary abscess, etc.....	11		2	2	1	2	1		5	
126. Diseases of the prostate.....	120	6	7	18	9	3	14	16	22	11
127. Nonvenereal diseases of male genital organs.....	3			1					2	
128. Uterine hemorrhage (nonpuerperal).....	56	2	3	9	8		1	6	19	5
129. Uterine tumor (noncancerous).....	37	1	2	5	1		5	5	12	4
130. Other diseases of the uterus.....	32		4	9	1		1	5	7	2
131. Cysts and other tumors of the ovary.....										
132. Salpingitis and other diseases of female genital organs.....	84	1	3	22	9	1	3	12	21	4
133. Nonpuerperal diseases of the breast (cancer excepted)	2					1				1
VII. The puerperal state.....										
134. Accidents of pregnancy.....	346	15	21	50	56	14	24	58	63	29
135. Puerperal hemorrhage	107	5	7	19	6	4	7	14	24	15
136. Other accidents of labor.....	34	2	2	3	4	5	1	9	4	3
137. Puerperal septicheemia	40		3	6	3	1	5	8	4	5
138. Puerperal albuminuria and convulsions.....	46	3	3	6	2	2	5	6	8	6
139. Puerperal phlegmasia alba dolens, embolus, sudden death.....	107	5	5	15	11	2	5	19	21	18
140. Following childbirth (not otherwise defined).....	8		1	1			1	1	2	1
141. Puerperal diseases of the breast.....	4		1					1		2
VIII. Diseases of the skin.....										
142. Gangrene	106	5	7	18	13	2	18	12	16	8
143. Furuncle	34	2	3	2	4	1	7	2	3	4
144. Acute abscess	19	1		3	4		3	2	4	1
145. Other diseases of the skin and annexa.....	29	1	2	6	4		2	4	6	1
	24	1	2	7	1	1	1	4	3	2
IX. Diseases of the bones.....										
146. Diseases of the bones (tuberculosis excepted).....	62	2	2	14	4		5	9	14	5
147. Diseases of the joints (except tuberculosis and rheumatism)	47	1	1	11	2		2	8	13	3
148. Amputations	10	1		3	2		1	1	1	1
149. Other diseases of the organs of locomotion.....	2		1							
	3						2			1

TABLE 33.—Deaths from Each Specified Disease and Class of Disease, for Ten Minor Geographic Divisions of California: 1916—Continued.

Cause of death	The State	Northern California		Central California				Southern California			
		Coast counties	Interior counties	San Francisco	Alameda county	Other bay counties	Coast counties	Interior counties	Los Angeles city	Rest of Los Angeles county	Other counties
X. Malformations											
136. (a) Hydrocephalus	341	16	13	49	37	13	23	76	42	31	41
(b) Congenital malformation of the heart	27	4		2	2	1	1	5	2	8	2
(c) Other congenital malformations	215	7	10	32	27	9	13	54	21	19	25
	99	5	3	15	8	3	9	17	13	10	16
XI. Diseases of early infancy											
151. (a) Premature birth (not stillborn)	1,505	62	70	262	136	56	105	342	217	117	196
(b) Congenital debility, "atrophy," "marasmus," etc.	923	35	42	120	91	34	61	201	146	75	115
152. Other diseases peculiar to early infancy	312	19	10	25	25	9	23	87	41	23	47
153. Lack of care	264	8	18	57	16	13	21	52	30	16	33
	6				1			2			3
XII. Old age											
154. Senility	428	23	34	48	30	9	34	99	57	47	47
	423	23	34	46	30	9	34	99	57	47	47
XIII. Affections produced by external causes											
155. Suicide by poison	4,104	243	267	772	230	185	238	824	530	263	537
156. Suicide by asphyxia	156	5	6	36	11	4	8	16	41	12	17
157. Suicide by hanging or strangulation	123			70	14	1	3	5	18	3	9
158. Suicide by drowning	92	12	3	10	11	3	6	12	11	6	8
159. Suicide by firearms	55	3	2	12	8	1	2	17	2	7	1
160. Suicide by cutting or piercing instruments	304	21	21	86	31	11	34	53	53	29	50
161. Suicide by jumping from a high place	66	4	2	10	5		7	18	7	4	11
162. Suicide by crushing	23	1		11				2	8	1	
163. Other suicides	9				4	1	1	2	2		
164. Poisoning by food	7							3			2
165. Other acute poisonings	34	1	4	2	1	1	1	6	4	3	11
166. Confagration	63	7	5	13	6	1	4	9	11	3	9
167. Burns (confagration excepted)	61	8	4	6	5		10	19	4	1	8
168. Absorption of deleterious gases (confagration excepted)	156	8	10	20	13	10	10	30	20	13	22
169. Accidental drowning	135	2	1	96	4	3	2	10	12	6	9
170. Traumatism by firearms	309	37	32	86	10	36	21	163	15	29	71
171. Traumatism by cutting or piercing instruments	98	8	7	5	3	2	6	24	7	8	23
172. Traumatism by fall	4							1		1	2
	414	25		110	20	0	18	65	66	29	50

*This title includes only deaths under 8 months of age.

173.	Traumatism in mines and quarries.	53	4	12	4	2	2	3	23	1	1
174.	Traumatism by machines.	74	8	7	18	6	2	2	5	13	2
175.	(a) Railroad accidents and injuries.	306	12	34	15	28	27	18	67	42	20
176.	(b) Street car accidents and injuries.	90	2		33	10	2	4	6	21	3
177.	(c) Automobile accidents and injuries.	523	15	19	65	37	33	34	98	94	48
178.	(d) Injuries by other vehicles.	160	12	6	21	12	14	12	41	12	15
179.	(e) Landslide, or other crushing	86	17	13	16	3	4	2	14	6	1
180.	Injuries by animals.	49	7	5	2	1	2	3	20	2	2
181.	Starvation	7						1	3	1	1
182.	Excessive cold	11	2	3					2		4
183.	Effects of heat	24		1					7	1	15
184.	Lightning	2	1	2	2	3	2	3	17	4	4
185.	Electricity (lightning excepted).	39	2	2	11	3	12	60	30	9	44
186.	Homicide by firearms.	242	9	16	48	1	1	2	5	6	4
187.	Homicide by cutting or piercing instruments.	49	2	7	5	1	6	3	14	8	2
188.	Homicide by other means.	68	1	6	18	4	3	3	2	3	9
189.	Fractures (cause not specified).	10			2			3	2	3	
190.	Other external violence	116	7	17	10	7	9		34	8	5
191.	XIV. Ill-defined diseases	13	1		1		1	1	2	1	5
192.	Ill-defined organic disease.	2					1				1
193.	Sudden death	188									
194.	(a) Cause of death ill-defined.	8			1			1	2	1	3
195.	(b) Cause of death not specified, or unknown.	3	1								2

TABLE 34.—Deaths from Certain Principal Causes.

Cause of death	The State	Alameda	Albany	Amador	Butte	Calaveras
1917						
All causes	42,064	3,794		141	415	100
Typhoid fever	225	11		1	4	1
Malarial fever	47	2			6	
Smallpox	13	2				
Measles	188	15			6	
Scarlet fever	49	5				
Whooping cough	200	10				
Diphtheria and croup	207	18				
Influenza	277	18		2	12	1
Other epidemic diseases	141	13			3	
Tuberculosis of lungs	4,788	360		16	36	12
Tuberculosis of other organs	660	54		2	3	1
Syphilis and gonorrhea	300	22			1	2
Cancer	3,065	305		11	42	3
Other general diseases	1,515	132		2	21	3
Meningitis	282	21			1	
Other diseases of nervous system	3,413	297		8	21	8
Diseases of circulatory system	7,483	886		25	72	13
Pneumonia and broncho-pneumonia	3,799	378		11	39	13
Other diseases of respiratory system	900	57		5	5	2
Diarrhea and enteritis, under 2 years	910	61		5	12	2
Diarrhea and enteritis, 2 years and over	384	33			1	2
Other diseases of digestive system	2,246	228		8	28	5
Bright's disease and nephritis	3,183	267		16	36	7
Childbirth	389	36			5	1
Diseases of early infancy	1,575	158		3	15	2
Suicide	806	79		5	9	5
Other violence	3,429	214		19	25	13
All other causes	1,575	109		2	12	5
1916						
All causes	39,960	3,570	1	152	347	76
Typhoid fever	208	22		3	4	
Malarial fever	54	1			2	3
Smallpox	12	1				
Measles	41	2				
Scarlet fever	34					
Whooping cough	197	8		1		
Diphtheria and croup	290	33		3	1	1
Influenza	289	19		3	9	
Other epidemic diseases	135	10			4	
Tuberculosis of lungs	4,606	347		18	30	13
Tuberculosis of other organs	659	69			5	
Syphilis and gonorrhea	276	27		1	2	1
Cancer	2,879	288		7	25	4
Other general diseases	1,421	119		5	9	2
Meningitis	236	23			1	
Other diseases of nervous system	2,692	247		9	25	7
Diseases of circulatory system	8,040	894	1	26	77	12
Pneumonia and broncho-pneumonia	3,432	358		12	41	4
Other diseases of respiratory system	702	71		2	5	3
Diarrhea and enteritis, under 2 years	792	46		5	5	1
Diarrhea and enteritis, 2 years and over	434	25		3	5	1
Other diseases of digestive system	1,956	172		8	20	7
Bright's disease and nephritis	2,922	222		9	18	5
Childbirth	346	26		2	5	
Diseases of early infancy	1,506	136		6	11	1
Suicide	917	84		3	3	1
Other violence	3,277	196		22	25	10
All other causes	1,506	125		4	15	

for Counties, Arranged Alphabetically: 1917 and 1916.

Colusa	Contra Costa	Del Norte	El Dorado	Fresno	Glenn	Humboldt	Imperial	Inyo	Kern	Kings	Lake	Lassen	Los Angeles
120	454	28	127	1,344	66	392	380	54	548	253	61	68	10,555
2	2		3	17		1	8	2	6	4			44
			2	5	2	1			5	1			8
	1		1	7	1		4	1	2	4			37
			1	3		1							10
	3			22		7	4		2				30
1	4			10		2			3	1			50
2	2	1	3	14	1	2	3		4	1	1		61
	3			7		1	1		2	2	1		34
12	31	5	11	153	5	26	48	4	66	30	6	4	1,494
	7	1		25		11	8		12	6	3	2	168
	2			9		1	6	1	2				68
5	21	3	10	71	6	18	8	1	25	17	5	3	849
9	20		4	51	7	10	6	2	17	7	4	2	390
	4			10		4	2		11	2	1	1	61
16	27	2	4	73	4	24	16	3	38	20	4	4	798
21	69	4	30	180	6	91	18	11	48	35	10	9	1,994
13	50		8	149	8	23	36	7	44	17	4	8	765
1	14		5	12		7	8	1	12	4	1		200
4	13		1	61	1	5	24		18	13	2	1	209
1	2	2		15	1	1	4		4	1	4		84
4	20	2	4	78	3	26	10	5	41	19	2	4	590
1	29	3	16	75	4	29	19	3	28	9	2	7	851
	2			20		5	5	1	10	3			93
2	20		2	90	2	22	30	2	25	13	4	3	349
4	5	1		19		9	12	2	14	2		2	231
17	74	3	11	125	11	47	93	5	93	27	4	13	659
5	14	1	11	45	4	18	7	3	16	15	3	5	443
91	436	35	152	1,116	76	422	319	45	564	208	71	66	10,038
	4		1	12	1		8	1	9	2	1		32
			5	5			3		3				1
	2			1					1				3
				1			5		6				10
				4		1			1	1			5
	3	1		5			2		3				87
2	5	1		10			2		3	2			28
	3	1		21		3	1			5	2	1	50
	1		1	8	1				3	2	1	1	31
11	24	2	12	137	3	40	46	3	56	17	3	3	1,424
2	9	1	1	18	1	15	6	1	18	2	1	3	140
	3		1	12		3	3		5	2	1	1	60
5	27	3	12	62	5	24	6	3	23	12	2	4	830
7	17	2	6	31	3	20	13		19	7	4	9	382
	4			10		1	1		3	1			60
4	20	4	7	62	7	24	11	5	19	11	2	9	607
16	86	5	44	150	17	80	17	7	73	29	13	21	2,071
5	50	2	13	108	11	29	32	2	42	20	8	5	711
2	5	1	6	17		8	3	1	10	8	5	1	153
2	6		2	61	2	4	28	2	16	10	2	1	219
	2		1	11	1	3	4	1	10	3	2	1	135
4	16	4	7	56	2	22	16	4	30	11	3	7	479
6	20	3	12	75	8	28	10	3	31	11	4	7	801
	5		1	7		3	8		5	5	2		92
3	20		4	68	5	17	21		32	16	1	6	334
4	8	1	1	18	1	5	8	2	13	2	2	5	207
14	85	3	11	111	5	61	60	5	101	16	7	16	591
4	11	1	4	35	3	22	10	5	29	13	5	6	396

TABLE 34.—Deaths from Certain Principal Causes, for Counties.

Cause of death	Madera	Mariposa	Mariposa	Mendocino	Merced	Modoc
1917						
All causes	114	321	39	325	183	44
Typhoid fever				1	1	
Malarial fever						1
Smallpox						
Measles	1	5				
Scarlet fever		5			1	
Whooping cough	6		1	1	2	
Diphtheria and croup		1		4		1
Influenza	1	1		2	5	
Other epidemic diseases					1	3
Tuberculosis of lungs	8	55	2	42	15	5
Tuberculosis of other organs	5	3		4	2	1
Syphilis and gonorrhea		2		3	2	
Cancer	6	30	2	15	6	1
Other general diseases	5	11	1	12	9	4
Meningitis	3	1		2	2	
Other diseases of nervous system	8	25	2	36	15	3
Diseases of circulatory system	11	54	6	55	21	5
Pneumonia and broncho-pneumonia	10	29	3	43	25	2
Other diseases of respiratory system	1	6	1	5	4	
Diarrhea and enteritis, under 2 years	4	2		4	9	2
Diarrhea and enteritis, 2 years and over	3	1	1	2	1	
Other diseases of digestive system	5	9	4	14	8	1
Bright's disease and nephritis	6	20	1	26	10	4
Childbirth	2	3		2	1	1
Diseases of early infancy	12	9		7	15	5
Suicide	2	9	1	11	4	1
Other violence	14	28	13	28	16	3
All other causes	2	12	1	6	7	1
1916						
All causes	115	264	41	359	200	41
Typhoid fever	1			1		
Malarial fever					3	
Smallpox						
Measles				3		
Scarlet fever					1	
Whooping cough					1	
Diphtheria and croup	1				1	
Influenza		1		2	1	
Other epidemic diseases		1	1	1	1	1
Tuberculosis of lungs	11	38	2	41	25	
Tuberculosis of other organs	1	5		5	4	
Syphilis and gonorrhea	1	3		1	4	
Cancer	10	16	2	13	12	2
Other general diseases	6	10	4	11	9	3
Meningitis		2		2	3	
Other diseases of nervous system	3	14	2	50	4	4
Diseases of circulatory system	21	59	5	56	30	10
Pneumonia and broncho-pneumonia	14	21	4	34	26	
Other diseases of respiratory system	2	3		4	1	1
Diarrhea and enteritis, under 2 years	2	3		4	8	
Diarrhea and enteritis, 2 years and over	1	1	1	8		1
Other diseases of digestive system	3	10	2	19	6	5
Bright's disease and nephritis	9	12	2	27	12	1
Childbirth		4	1	1	2	
Diseases of early infancy	10	13	1	13	8	3
Suicide	4	5		12	3	2
Other violence	14	31	11	40	27	4
All other causes	1	12	3	11	8	4

Arranged Alphabetically: 1917 and 1916—Continued.

Mono.	Monterey.	Napa.	Nevada.	Orange.	Placer.	Plumas.	Riverside.	Sacramento.	San Diego.	San Bernardino.	San Diego.	San Francisco.	San Joaquin.
4	337	546	205	652	253	83	582	1,417	104	1,274	1,431	7,156	1,378
1	1	1	1	3	2	1	6	11	1	8	10	23	13
								2				1	
			1				2	7	3	5	18	37	2
1			1				1	2			3	11	
2				7			11	9		9	1	28	2
1				1				8		1	6	60	12
2			2	6	1	1	4	7	2	9	10	8	11
2				3		1	2	3		4	4	22	9
14	48	24	62	49	8	99	156	10	212	171	741	166	
5	7	3	11	4	1	15	26	1	34	17	110	23	
	1	4	4	1	1	2	12		11	10	106	13	
27	35	14	46	16	4	35	96	5	60	97	709	59	
1	17	20	6	30	4	16	61	2	26	54	240	36	
	5	2	3	6	2	6	11		8	13	45	16	
29	84	15	74	16	1	52	87	2	182	134	465	148	
65	112	45	95	30	11	63	240	32	186	289	1,163	181	
30	81	21	43	27	6	58	131	8	88	117	720	168	
7	13	7	15	7	2	8	25	2	17	20	157	18	
	6		39	3		24	30	5	66	10	71	23	
3	5	4	12	4		6	15	1	15	14	48	15	
14	24	9	34	15	7	28	71	8	43	69	409	62	
31	50	12	30	18	2	44	93	4	66	94	724	143	
3	2		9	2		7	18		14	9	61	13	
14	7	5	39	6	3	24	63	5	45	45	206	45	
	5	10	2	7	3	5	37	2	14	27	198	28	
2	34	28	16	57	28	44	137	6	106	124	524	127	
1	19	16	10	19	15	20	59	5	45	61	242	43	
9	325	531	204	584	239	61	556	1,204	92	1,159	1,438	7,163	1,163
	1		1	4		1	7	7	1	8	6	16	9
				1			2	4			1	4	1
							6			1			2
	1		1	11			6	1		4	10	19	3
6			1	1	1	1	2	5		1	10	182	7
1	1	3	10	3			2	7	2	9	19	15	3
1	5			1			3	5		1	8	16	3
21	53	19	54	45	1	100	137	8	206	174	778	150	
1	7	4	10	5		15	23	2	26	24	125	22	
	1	2	5			5	10	1	6	13	72	6	
15	31	18	49	11	1	22	85	2	64	98	609	57	
7	26	3	25	8	9	20	34	6	36	49	250	33	
1	3	1	10	1		4	7	1	5	16	28	8	
27	64	12	46	15	3	34	63	8	136	107	360	118	
1	76	120	53	91	55	91	212	12	206	327	1,526	175	
1	21	87	15	46	17	31	118	6	82	84	684	131	
1	6	6	11	15	4	6	23	3	14	20	123	14	
	8	2	1	15	5	20	30	4	43	17	76	15	
	1	9	1	14	3	8	18	1	9	14	44	24	
1	16	15	8	32	17	26	70	7	39	54	407	58	
	35	46	10	34	7	32	88	5	64	84	596	111	
	4	1	8	5		4	10		9	12	30	9	
	14	6	2	25	6	27	68	4	35	54	202	36	
	7	9	5	7	3	10	32	4	15	43	215	25	
3	31	35	22	53	22	54	85	8	106	132	537	115	
1	17	6	13	17	5	17	60	7	34	65	230	48	

TABLE 24—Deaths from Certain Principal Causes, by Counties.

Cause of death	1917				
	All causes	Manitou	Manitou	Manitou	Manitou
		234	265	427	1,506
Typhoid fever			2	4	4
Malarial fever					
Smallpox					4
Measles			2	5	4
Scarlet fever				1	1
Whooping cough				1	3
Diphtheria and croup		2	1	3	3
Influenza		2		4	12
Other epidemic diseases			1	2	1
Tuberculosis of lungs		21	49	26	126
Tuberculosis of other organs		4	3	6	19
Syphilis and gonorrhea					7
Cancer		10	27	22	114
Other general diseases		5	19	21	90
Meningitis			2	4	6
Other diseases of nervous system		22	28	35	241
Diseases of circulatory system		67	61	64	345
Pneumonia and broncho-pneumonia		7	30	39	114
Other diseases of respiratory system		4	6	19	31
Diarrhea and enteritis, under 2 years		5	7	15	42
Diarrhea and enteritis, 2 years and over		4	2	14	14
Other diseases of digestive system		19	16	28	62
Bright's disease and nephritis		9	24	26	105
Childbirth		4	1	4	14
Diseases of early infancy		16	8	18	53
Suicide		3	14	5	30
Other violence		20	47	52	80
All other causes		10	13	17	62
		230	357	427	1,506
		230	357	427	1,506
Typhoid fever		4	2	6	6
Malarial fever		1			
Smallpox					
Measles					
Scarlet fever		1	2		1
Whooping cough			2	6	4
Diphtheria and croup		1	2	2	8
Influenza		2	1	5	13
Other epidemic diseases			1	5	7
Tuberculosis of lungs		21	31	28	100
Tuberculosis of other organs		3	7	6	14
Syphilis and gonorrhea		1	1		3
Cancer		13	21	20	134
Other general diseases		6	11	18	57
Meningitis		2	5	6	6
Other diseases of nervous system		18	16	44	205
Diseases of circulatory system		61	74	98	322
Pneumonia and broncho-pneumonia		10	28	30	113
Other diseases of respiratory system		5	5	10	33
Diarrhea and enteritis, under 2 years		4	7	4	34
Diarrhea and enteritis, 2 years and over		4	8	5	16
Other diseases of digestive system		11	15	23	62
Bright's disease and nephritis		3	21	24	106
Childbirth		2	3	3	11
Diseases of early infancy		16	8	14	53
Suicide		4	9	11	35
Other violence		20	47	52	80
All other causes		7	13	12	73

Arranged Alphabetically: 1917 and 1916—Concluded.

Shasta	Sierra	Slavut	Solano	Sonoma	Stanislaus	Sutter	Tehama	Trinity	Tulare	Tuolumne	Ventura	Yolo	Yuba
249	35	258	375	736	420	96	165	31	538	121	345	199	157
1			1	3	9	2	3		2	3	2		1
5		1		1		1	1		4	1			
4		1	2		3	2	3		5		2		
4		1	2	2	6		1		11	1	1	2	2
10	2	4	3	5	11	1	3	1	3	6		1	3
1		2	2	1	1				1	1	4	1	1
18	3	15	24	65	46	9	8	2	48	10	43	9	13
		4	5	15	11	1	2		8	2	6	3	2
			3	1	1						3		2
11	1	12	22	58	28	3	7	2	30	7	15	24	6
7	2	16	17	27	10	3	4		14	5	11	5	8
			4	3	5	1	1		4	2	6		
19	4	9	29	76	20	11	19	4	51	12	19	25	13
47	3	54	70	151	76	19	32	13	83	15	39	37	25
21	4	15	53	74	42	11	10	3	45	15	29	18	22
4	1	8	6	15	9	2	2		8	3	7	7	2
6	1	7	5	8	8	1	2		27		30	3	4
3		3	2	6	6	1	4		12			3	2
14	2	13	27	46	25	3	11		22	7	12	8	6
6	3	20	15	62	12	5	11	2	27	4	24	6	20
4		5	4	3	7				9		5	1	
7	3	13	19	22	21	1	14		38	2	15	5	1
6	2	6	2	18	10	2	2		5	2	5	4	5
37	2	38	41	49	41	12	18	4	41	14	55	29	16
14	2	11	17	25	10	5	7		32	9	12	6	3
229	34	229	319	690	378	87	143	38	442	120	285	181	158
5			1	5	2		3		3	2	1	2	2
2		2	1			1	2		1		1	2	2
											1	1	
1				1	2		1			1			
		4	1	1					4		7		1
		2	3		6		2		2		1		1
6	4	2		9	5	3	3	3	11	7	1	4	2
1		2		4	2		2		3	1	1		1
29		20	16	58	37	8	9	1	40	10	28	15	16
3	1	2	5	12	6	1	1	1	4	3	7		1
2		1	4	4	4	1			2		1		
11	3	17	16	55	21	7	12	1	26	5	15	11	5
5	1	4	15	18	14	1	4	1	20	2	7	10	3
		1	3	5	3				3		3	3	
16	4	7	19	47	34	5	9	3	27	6	15	14	12
38	7	59	67	157	53	13	28	13	73	11	30	27	22
27	1	17	40	70	34	11	18		31	20	30	11	23
7	1	2	10	14	16	1	2	1	5	5	6	6	7
1		4	6	6	7	1	1		22	1	20	4	
3	1	2	1	5	1	1	4		6		4	2	3
11	1	6	13	44	23	3	5	1	15	15	9	14	5
5	2	11	18	56	23	8	8		21	5	20	7	21
3		3	3	8	5		2		6	1	7	1	2
8	2	12	17	25	25	4	6		40	1	15	11	3
2	2	4	5	13	8	2	2	4	6	1	5	4	1
35	3	30	41	43	30	13	10	8	47	19	43	28	23
8	1	15	14	29	14	3	9	1	24	4	6	4	2

TABLE 25.—Proportion per 1,000 Total Deaths from Certain Principal Causes, for

Cause of death	The State—	Alameda	Huila	Contra Costa
1917				
All causes	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	5.3	2.9	9.6	4.4
Malarial fever	1.1	0.5	14.5	—
Smallpox	0.3	0.5	—	—
Measles	4.5	4.9	14.5	2.2
Scarlet fever	1.2	1.3	—	—
Whooping cough	4.8	2.6	—	6.6
Diphtheria and croup	4.9	4.4	—	8.5
Influenza	6.6	4.8	28.9	4.4
Other epidemic diseases	3.4	3.4	7.2	6.6
Tuberculosis of lungs	112.8	94.9	86.8	66.3
Tuberculosis of other organs	15.9	14.2	7.2	15.4
Syphilis and gonorrhea	7.3	5.8	2.4	4.4
Cancer	72.3	80.4	101.2	66.3
Other general diseases	36.0	34.9	50.6	44.1
Meningitis	6.7	5.5	2.4	8.9
Other diseases of nervous system	81.1	79.3	56.6	30.5
Diseases of circulatory system	177.8	233.5	173.5	132.0
Pneumonia and broncho-pneumonia	90.3	99.6	94.9	129.0
Other diseases of respiratory system	19.0	15.0	12.0	30.8
Diarrhea and enteritis, under 2 years	21.6	18.9	28.9	28.6
Diarrhea and enteritis, 2 years and over	9.1	8.7	2.4	4.4
Other diseases of digestive system	53.4	60.1	67.5	44.1
Bright's disease and nephritis	75.8	70.4	86.8	63.9
Childbirth	9.2	9.5	12.0	4.4
Diseases of early infancy	37.4	41.7	36.2	57.3
Suicide	21.3	20.8	21.7	11.0
Other violence	81.5	56.4	60.2	163.0
All other causes	37.4	28.7	28.9	30.8
1916				
All causes	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	5.2	6.2	11.5	9.2
Malarial fever	1.4	0.3	5.8	—
Smallpox	0.3	0.3	—	4.6
Measles	1.0	0.6	—	—
Scarlet fever	0.9	—	—	—
Whooping cough	4.9	2.2	—	6.9
Diphtheria and croup	7.3	9.2	2.9	11.5
Influenza	7.2	5.3	25.9	6.9
Other epidemic diseases	3.4	2.8	11.5	2.3
Tuberculosis of lungs	115.6	97.2	86.5	55.0
Tuberculosis of other organs	16.5	19.3	14.4	20.6
Syphilis and gonorrhea	6.9	7.6	5.8	6.9
Cancer	72.2	80.7	72.1	61.9
Other general diseases	35.7	32.3	25.9	35.0
Meningitis	5.9	6.1	2.9	9.2
Other diseases of nervous system	67.5	61.2	72.1	45.9
Diseases of circulatory system	201.7	250.4	221.9	197.2
Pneumonia and broncho-pneumonia	86.1	100.3	118.1	114.7
Other diseases of respiratory system	17.6	19.9	14.4	11.5
Diarrhea and enteritis, under 2 years	19.9	12.9	14.4	13.7
Diarrhea and enteritis, 2 years and over	10.9	7.0	14.4	4.6
Other diseases of digestive system	49.1	48.2	57.6	36.7
Bright's disease and nephritis	73.3	62.2	51.9	45.9
Childbirth	8.7	7.3	14.4	11.5
Diseases of early infancy	37.8	38.1	31.7	45.9
Suicide	23.0	23.5	8.6	18.3
Other violence	62.2	54.9	72.1	194.9
All other causes	37.8	35.0	43.2	35.2

Selected Counties (Reporting 300 Deaths), Arranged Alphabetically: 1917 and 1916.

Presno	Humboldt	Imperial	Kern	Los Angeles	Marin	Merced	Monterey	Napa	Orange	Riverside
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
12.7	2.6	21.1	11.0	4.2		3.1	3.0		4.6	10.3
3.7	2.6		9.1	0.3				1.8		
5.2		10.5	3.7	3.5	15.6					3.4
2.2	2.5			1.0	15.6		3.0			1.7
16.4	17.9	10.5	3.7	2.8		3.1	5.9		10.7	18.0
7.4	5.1		5.5	4.7	3.1	12.3	3.0		1.5	
10.4	5.1	7.9	7.3	5.8	3.1	6.2	5.9		9.2	6.9
5.2	2.5	2.6	3.7	3.2			5.9		4.6	3.4
113.8	66.3	126.3	120.4	141.5	171.3	129.2	41.6	87.9	95.1	170.1
18.6	28.1	21.1	21.9	15.9	9.4	12.3	14.8	12.8	16.9	25.8
6.7	2.5	15.8	3.7	6.4	6.2	9.2		1.8	6.1	3.4
52.8	45.9	21.0	45.6	80.4	93.5	46.1	80.1	64.1	70.6	60.2
37.9	25.5	15.8	31.0	37.0	34.3	36.9	50.4	36.6	46.0	27.5
7.4	10.2	5.3	20.1	5.8	3.1	6.2	14.8	3.7	9.2	10.3
54.3	61.2	42.1	69.3	74.7	77.9	110.8	86.1	153.8	113.5	89.4
133.9	232.1	47.4	87.6	188.9	169.2	169.2	192.9	205.1	145.7	108.2
110.9	58.7	94.7	80.3	72.5	90.4	122.3	89.0	148.4	61.0	99.7
8.9	17.9	21.0	21.9	18.9	18.7	15.4	20.8	23.8	23.0	13.8
45.4	12.8	63.2	32.8	19.8	6.2	12.3	17.8		56.8	41.2
11.3	2.5	10.5	7.3	8.0	3.1	6.2	8.9	9.2	18.4	10.3
56.6	63.3	26.3	74.8	55.9	28.0	43.1	41.6	44.0	52.2	48.1
53.8	74.0	50.0	51.1	80.6	62.3	80.0	92.0	91.6	46.0	75.8
14.9	12.8	13.2	18.2	8.8	9.4	6.1	8.9	3.7	13.8	12.0
67.0	56.1	79.0	45.6	33.1	28.0	21.5	41.5	12.8	59.8	41.2
14.1	23.0	31.6	25.5	21.9	28.0	33.8	14.8	18.3	10.7	8.6
93.0	119.9	244.7	169.7	62.4	87.2	86.2	100.9	51.3	87.4	75.6
32.5	45.9	18.4	29.2	42.0	37.4	18.5	56.4	29.3	20.2	34.4
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
10.7		25.1	16.0	3.2		2.8	3.1		6.8	12.6
4.5		9.4	5.3	0.1					1.7	3.6
0.9			1.8	0.3						3.6
0.9		15.7	10.6	1.0		8.4				10.8
3.6	2.4		1.8	0.5					1.7	
4.5		6.3	5.3	8.7			3.1		18.8	10.8
9.0		6.3	5.3	2.8			18.5		1.7	3.6
18.8	7.1	3.1		5.9	3.8	5.6	3.1	1.9	17.1	3.6
7.2			5.3	3.1	3.8	2.8	3.1	9.4		5.4
122.7	94.8	144.2	99.3	141.8	143.9	114.2	64.6	99.8	92.5	179.8
16.1	35.5	18.8	31.9	13.9	18.9	13.9	21.5	7.5	17.1	27.0
10.7	7.1	9.4	8.9	6.0	11.4	2.8	3.1	3.8	8.6	9.0
55.5	56.9	18.8	40.8	82.7	60.6	36.2	46.1	58.4	83.9	39.6
27.8	47.4	40.8	33.7	38.1	37.9	30.6	21.5	49.0	42.8	36.0
9.0	2.4	3.1	5.3	6.0	7.6	5.6	3.1	5.7	17.1	7.2
55.5	56.9	34.5	33.7	60.5	53.0	139.3	83.1	120.5	78.8	61.1
134.4	210.9	53.3	129.4	206.3	223.5	156.0	232.8	226.0	155.8	163.6
96.8	68.7	100.3	74.5	70.8	79.5	94.7	64.6	163.8	78.8	55.7
15.2	19.0	9.4	17.7	15.2	11.4	11.2	18.5	11.3	25.7	10.8
54.7	9.5	87.8	28.4	21.8	11.4	11.1	24.6	3.8	25.7	36.0
9.9	7.1	12.5	17.7	13.4	3.8	22.3	3.1	16.9	24.0	14.4
50.2	52.1	50.2	53.2	47.7	37.9	52.9	49.2	28.3	54.8	46.8
67.2	61.4	31.3	55.0	88.8	45.5	75.2	107.7	86.6	58.2	57.5
6.3	7.1	9.4	8.9	9.2	15.1	2.8	12.3	1.9	13.7	7.2
60.9	40.3	65.8	56.7	33.3	49.2	36.2	43.1	11.3	42.8	48.6
16.1	11.8	25.1	23.0	20.6	18.9	33.4	21.5	16.9	12.0	18.0
99.5	144.5	188.1	179.1	58.9	117.4	111.4	96.4	65.9	90.8	97.1
31.4	52.1	31.3	51.4	39.4	45.5	30.6	52.3	11.3	20.1	30.6

TABLE 25.—Proportion per 1,000 Total Deaths from Certain Principal Causes for

Cause of death	Year		
	1907	1908	1909
All causes	1,000.0	1,000.0	1,000.0
Typhoid fever	7.5	6.3	7.0
Malarial fever	1.4		
Smallpox			
Measles	4.9	3.9	9.1
Scarlet fever	1.4		2.1
Whooping cough	4.4	7.1	4.7
Diphtheria and croup	5.6	4.2	4.2
Influenza	4.9	7.1	7.0
Other epidemic diseases	2.1	3.1	2.8
Tuberculosis of lungs	116.1	108.4	119.5
Tuberculosis of other organs	18.4	28.7	11.5
Syphilis and gonorrhea	8.7	9.6	7.0
Cancer	67.7	47.1	67.5
Other general diseases	43.0	20.4	37.7
Meningitis	7.8	6.3	9.1
Other diseases of nervous system	61.4	142.9	33.6
Diseases of circulatory system	160.4	146.0	201.9
Pneumonia and broncho-pneumonia	92.5	69.1	91.8
Other diseases of respiratory system	17.6	13.3	20.3
Diarrhea and enteritis, under 2 years	21.2	51.5	7.0
Diarrhea and enteritis, 2 years and over	10.6	11.8	9.8
Other diseases of digestive system	50.1	33.7	44.2
Bright's disease and nephritis	66.6	51.8	67.7
Childbirth	12.7	11.0	6.3
Diseases of early infancy	44.5	35.3	31.4
Suicide	26.1	11.0	18.9
Other violence	96.7	88.2	98.6
All other causes	41.6	35.3	42.6
All causes	1,000.0	1,000.0	1,000.0
Typhoid fever	5.8	6.9	4.2
Malarial fever	3.3		0.7
Smallpox		0.9	
Measles			0.7
Scarlet fever	0.8		0.7
Whooping cough	0.8	3.5	7.0
Diphtheria and croup	4.2	0.9	7.0
Influenza	5.8	7.8	13.2
Other epidemic diseases	4.2	0.9	2.1
Tuberculosis of lungs	113.8	177.7	121.0
Tuberculosis of other organs	19.1	22.4	14.7
Syphilis and gonorrhea	8.3	5.2	9.0
Cancer	70.6	56.2	68.1
Other general diseases	23.2	31.1	34.1
Meningitis	5.8	4.3	11.1
Other diseases of nervous system	54.8	117.3	74.4
Diseases of circulatory system	176.1	177.7	224.4
Pneumonia and broncho-pneumonia	98.0	70.7	58.4
Other diseases of respiratory system	19.1	12.1	13.9
Diarrhea and enteritis, under 2 years	24.9	37.1	11.8
Diarrhea and enteritis, 2 years and over	15.0	7.8	9.7
Other diseases of digestive system	58.2	33.6	37.6
Bright's disease and nephritis	73.1	56.2	58.4
Childbirth	8.3	7.8	8.3
Diseases of early infancy	54.8	30.2	37.6
Suicide	20.6	12.9	29.9
Other violence	70.6	91.5	91.8
All other causes	49.8	29.3	45.2

Selected Counties (Reporting 300 Deaths), Arranged Alphabetically: 1917 and 1916.

San Francisco	San Joaquin	San Mateo	Santa Barbara	Santa Clara	Santa Cruz	Solano	Sonoma	Stanislaus	Tulare	Ventura
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
3.2	9.4	5.5	8.9	2.5	2.8	2.7	4.1	21.4	3.7	5.8
0.1							1.4		7.4	
1.0				2.5						
5.2	1.5	5.5	11.1	2.5		5.4		7.1	9.3	5.8
1.5			2.2	0.6				2.4		
3.9	1.5		2.2	4.3	8.5	5.4	2.7	14.3	20.4	2.9
9.6	8.7	2.7	6.7	1.9				2.4	5.6	
1.1	8.0		8.9	7.5	2.8	8.0	6.8	26.2	14.9	
3.1	6.5	2.7	4.4	0.6	2.8	5.3	1.4	2.4	1.9	11.6
103.6	121.9	134.2	80.2	91.8	37.0	64.0	88.3	109.5	89.2	124.6
15.4	16.7	8.2	13.4	11.8	8.5	13.3	20.4	26.2	14.9	17.4
14.7	9.4	5.5		4.3	14.2	8.0	1.4	2.4		8.7
99.1	42.8	74.0	49.0	70.7	59.7	58.7	78.8	66.7	55.8	48.5
33.5	26.1	52.1	46.8	49.6	42.6	45.3	36.7	23.8	26.0	31.9
6.3	11.6	5.5	8.9	3.7	2.8	10.7	4.1	11.9	7.4	17.4
65.0	107.4	76.7	78.0	149.5	116.5	77.3	103.2	47.6	94.8	55.1
162.9	131.3	167.1	151.4	214.0	252.8	186.7	205.1	181.0	154.3	113.0
101.9	121.9	82.2	80.9	70.7	130.7	141.3	100.5	100.0	83.6	84.0
21.9	13.1	16.4	42.3	19.2	22.7	16.0	20.4	21.4	14.9	20.3
9.9	16.7	19.2	33.4	26.1	17.1	13.3	10.9	19.0	50.2	86.9
6.7	10.9	5.5	31.2	8.7	8.5	5.3	8.1	14.3	22.3	
57.2	45.0	43.8	62.4	38.5	45.5	72.0	62.5	59.5	40.9	34.8
101.2	103.8	63.8	57.9	63.1	76.7	40.0	84.2	28.6	50.2	69.6
8.5	9.4	2.7	8.9	8.7	2.8	10.7	4.1	16.7	16.7	14.5
28.8	32.7	21.9	40.1	32.9	45.5	50.7	29.9	50.0	70.6	43.5
27.7	20.3	38.4	11.1	18.6	28.4	5.3	24.4	23.8	9.3	14.5
73.2	92.2	128.8	115.8	55.2	34.1	109.3	66.6	97.6	76.2	159.4
33.8	31.2	35.6	37.9	38.5	37.0	45.3	34.0	23.8	59.5	34.8
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
2.2	7.6	5.6	14.1	3.8	2.5	3.1	7.3	5.3	6.8	3.5
0.6	0.9					3.1			2.3	3.5
										3.5
0.4	1.7									8.5
1.1		5.6			2.5		1.4	5.3		
2.7	2.6	5.6	14.0	2.6		3.1	1.4		9.1	24.6
18.4	5.9	5.6	4.7	5.1	2.5	9.4		15.9	4.5	3.5
2.1	2.5	2.8	11.7	8.3	5.1		13.1	13.2	24.9	3.5
2.2	2.5	2.8	11.7	4.5			5.8	5.3	6.8	3.5
108.6	126.8	86.9	65.6	102.2	73.4	50.2	84.2	97.9	90.5	96.2
17.4	18.6	19.6	14.0	8.9	17.7	15.7	17.4	15.9	9.0	24.6
10.1	5.1	2.8		1.9		12.5	5.8	10.6	4.5	3.5
85.1	48.2	58.8	46.8	85.6	73.4	50.2	79.8	55.6	58.8	52.6
36.2	27.9	30.8	42.2	38.4	35.5	47.0	26.1	37.0	45.2	24.6
3.9	6.8	14.0	14.0	3.8	2.5	9.4	7.3	7.9	6.8	10.5
51.5	99.8	44.8	103.0	130.9	83.6	59.6	66.2	90.0	61.1	52.6
213.0	147.9	207.3	229.5	205.6	281.0	210.0	227.9	140.2	165.2	105.3
95.5	110.7	78.4	70.3	72.2	106.3	125.4	101.6	89.9	70.1	105.3
17.2	11.8	14.0	23.4	21.1	22.8	31.4	20.3	42.3	11.3	21.1
10.6	12.7	19.6	9.4	21.7	10.1	18.8	8.7	18.5	49.8	70.2
6.1	20.3	22.4	11.7	10.2	7.6	3.1	7.2	2.6	13.6	14.0
56.8	49.0	42.0	53.9	39.6	35.5	40.8	63.9	60.9	33.9	31.6
83.2	93.8	58.8	56.2	67.7	53.2	56.4	81.3	68.8	47.5	70.2
7.0	7.6	14.0	7.0	7.0	17.7	9.4	11.6	13.2	13.6	24.6
28.2	30.4	64.5	49.2	37.7	30.4	53.3	36.3	66.1	90.5	52.6
32.8	21.1	25.2	25.8	22.3	27.9	15.7	18.9	21.2	13.6	17.5
75.0	97.2	131.7	93.7	54.3	58.2	128.5	62.4	79.4	106.3	150.9
32.1	40.6	36.4	28.1	46.6	50.6	43.9	42.1	37.0	54.3	21.0

TABLE 36.—Deaths from Certain Principal Causes, for Cities

Cause of death	Cities of 5,000 in 1910	Northern California			
		Eureka	Napa	Peta- luma	Santa Rosa
1917	25,370	201	89	146	134
Typhoid fever	129				1
Malarial fever	16		1		1
Smallpox	7				
Measles	107				
Scarlet fever	31	1			
Whooping cough	97				1
Diphtheria and croup	154				
Influenza	121			2	
Other epidemic diseases	84	1			1
Tuberculosis of lungs	2,819	14	8	9	9
Tuberculosis of other organs	417	6	2	1	4
Syphilis and gonorrhea	237				1
Cancer	2,154	14	6	14	13
Other general diseases	931	6	2	6	5
Meningitis	176	1	1	1	
Other diseases of nervous system	1,916	13	5	14	13
Diseases of circulatory system	4,537	55	20	28	25
Pneumonia and broncho-pneumonia	2,236	16	8	14	11
Other diseases of respiratory system	481	3	2	6	3
Diarrhea and enteritis, under 2 years	414	1		1	3
Diarrhea and enteritis, 2 years and over	212		2		1
Other diseases of digestive system	1,494	14	10	14	11
Bright's disease and nephritis	2,071	22	8	9	9
Childbirth	260	3			2
Diseases of early infancy	965	6	4	6	3
Suicide	563	1	1	5	4
Other violence	1,773	17	6	10	5
All other causes	985	7	3	6	8
1916	24,235	233	103	90	151
Typhoid fever	102			2	2
Malarial fever	17				
Smallpox	2				
Measles	21				
Scarlet fever	19	1			
Whooping cough	98				
Diphtheria and croup	204				
Influenza	114			2	1
Other epidemic diseases	74		4	1	1
Tuberculosis of lungs	2,715	12	11	3	8
Tuberculosis of other organs	427	8	1	3	4
Syphilis and gonorrhea	198	2			1
Cancer	2,000	19	6	10	14
Other general diseases	905	9	9	3	7
Meningitis	165	1	3		2
Other diseases of nervous system	1,497	14	5	9	9
Diseases of circulatory system	5,069	54	25	16	31
Pneumonia and broncho-pneumonia	2,024	12	6	10	12
Other diseases of respiratory system	410	4	2	3	4
Diarrhea and enteritis, under 2 years	392	1	2		1
Diarrhea and enteritis, 2 years and over	259	2	4		1
Other diseases of digestive system	1,298	16	4	5	15
Bright's disease and nephritis	1,907	17	6	2	10
Childbirth	204		1	2	2
Diseases of early infancy	872	9	4	7	9
Suicide	611	3			1
Other violence	1,674	27	9	6	12
All other causes	937	12	1	6	5

of 5,000 in 1910, Arranged Geographically: 1917 and 1916.

Marys- ville	Central California									Fresno
	San Fran- cisco	Ala- meda	Berke- ley	Oak- land	Rich- mond	San Rafael	San Luis Obispo	San Jose	Santa Cruz	
121	7,156	291	478	2,197	107	91	103	434	168	548
1	23	3		5				2	1	12
	1			2						1
	7									
	37		1	14				2		5
	11	3	1	1				1		1
1	28	2	2	5				2		13
	69	2	6	4		1	1	3		4
	8	3	2	12			1	4		8
	22		1	9						2
12	741	21	27	177	9	7	8	35	4	56
2	110	5	10	30	4	2	1	5	3	14
2	105			19				3	2	2
4	709	23	45	177	6	15	3	42	13	36
6	240	12	16	82	4	5	2	19	6	24
	45	2		15	1			1	1	6
12	465	30	50	163	6	4	10	37	20	31
18	1,165	83	131	502	11	10	36	97	42	61
17	729	16	25	202	18	9	2	37	22	53
2	157	4	5	39	3	3	1	8	5	5
3	71	3		30	1			11	2	28
2	48	1	2	22		1	1	1	2	6
6	400	17	35	140	4	4	8	20	11	34
17	724	19	37	160	10	4	3	30	9	29
	61	3	5	24	2	3	3	5	1	8
	206	5	24	107	9	5	6	18	5	39
3	188	5	5	56	1	1	2	12	3	8
11	524	18	29	125	16	6	8	22	7	43
2	242	11	9	75	2	5	5	17	9	19
116	7,163	261	458	2,095	134	81	101	532	178	395
1	16		3	9			3	2		5
2	4			1			1			1
	3									1
	8						1		1	1
	19		2	4	1			1		5
	132	1	3	24				4		2
1	15	1	4	12	1			7		5
1	16		3	5		1		1		3
15	778	15	23	184	8	9	8	41	7	37
1	125	6	4	50	4			6	4	9
	72	2	2	21	1			1		2
3	609	20	53	175	10	6	5	57	15	28
2	256	10	14	78	8	4	4	19	5	10
	28	4	4	11	1	1		3		6
8	369	20	34	136	5	6	7	44	20	24
13	1,526	70	134	553	16	15	36	105	67	50
20	684	20	30	163	20	10	6	52	14	39
2	123	3	10	47	1		3	8	3	3
	76	2	5	20	1	2	1	17		18
3	44		5	16	1		2	7		4
5	407	17	19	103	5	2	6	21	5	52
15	596	22	35	141	7	6	2	38	8	26
2	50	3	5	15	2	2		3	3	2
2	202	8	16	95	11	4	6	27	4	25
1	235	9	11	47	1			16	5	6
17	537	20	22	103	25	7	5	22	8	40
2	230	8	17	79	5	6	4	31	9	14

Table 36.—Deaths from Certain Principal Causes, for Cities of

Cause of death	Central California				
	Hakers- field	Sacra- mento	Stock- ton	Vallejo	Los Angeles
1917					
All causes	347	1,220	901	181	6,717
Typhoid fever	5	11	10		30
Malarial fever	5	2			3
Smallpox					
Measles		6	2	2	29
Scarlet fever		2			8
Whooping cough	1	9	2		19
Diphtheria and croup	2	8	5		39
Pollinia	3	7	5	3	30
Other epidemic diseases	1	3	6		29
Tuberculosis of lungs	50	141	95	12	946
Tuberculosis of other organs	10	26	17	2	114
Syphilis and gonorrhea	2	10	13		55
Cancer	16	92	38	13	549
Other general diseases	12	57	27	5	248
Meningitis	11	11	10	4	45
Other diseases of nervous system	17	72	118	16	461
Diseases of circulatory system	30	201	125	33	1,144
Pericardium and bronchopneumonia	28	114	120	32	499
Other diseases of respiratory system	6	18	13	3	122
Diarrhea and enteritis under 2 years	9	25	16		130
Diarrhea and enteritis 2 years and over	4	11	10	1	54
Other diseases of digestive system	27	65	45	17	410
Hepatitis, disease and hepatitis	18	41	69	8	336
Cholera	7	18	11	2	70
Diseases of urinary system	15	50	24	12	230
Nephritis	6	23	15		168
Other diseases	9	102	74	13	444
All other causes	9	52	28	3	305
1918					
All causes	362	1,285	741	135	6,224
Typhoid fever	5	5	6		14
Malarial fever		4			
Smallpox					2
Measles	5		1		8
Scarlet fever					4
Whooping cough	14		3		41
Diphtheria and croup	12	4	1		30
Pollinia		4			
Other epidemic diseases	14	5			112
Tuberculosis of lungs	42	112	73		611
Tuberculosis of other organs	14	21	10		102
Syphilis and gonorrhea	2	12	10	4	62
Cancer	17	91	31	12	524
Other general diseases	11	51	22	6	248
Meningitis	11	11	10		45
Other diseases of nervous system	17	72	118	16	461
Diseases of circulatory system	30	201	125	33	1,144
Pericardium and bronchopneumonia	28	114	120	32	499
Other diseases of respiratory system	6	18	13	3	122
Diarrhea and enteritis under 2 years	9	25	16		130
Diarrhea and enteritis 2 years and over	4	11	10	1	54
Other diseases of digestive system	27	65	45	17	410
Hepatitis, disease and hepatitis	18	41	69	8	336
Cholera	7	18	11	2	70
Diseases of urinary system	15	50	24	12	230
Nephritis	6	23	15		168
Other diseases	9	102	74	13	444
All other causes	9	52	28	3	305

5,000 In 1910, Arranged Geographically: 1917 and 1916—Concluded.

Southern California

Alhambra	Long Beach	Pasadena	Pomona	Santa Monica	Santa Ana	Riverside	Redlands	San Bernardino	San Diego	Santa Barbara
64	514	498	148	187	184	289	150	373	1,048	285
	2	6		1		3		4	8	1
			1					1	2	5
									2	
1			3		1	4	1	1	1	
	2							1	4	3
	3	3	6		4	1	4	2	7	3
			1	1		1	1	2	1	2
7	31	52	12	12	13	35	30	85	131	30
1	6	6	1	2	4	7	3	6	10	3
	1	4		1	1	2	2	4	8	
4	66	52	12	17	11	25	19	27	77	16
5	28	22	4	8	12	9	8	5	40	11
	1	3		1	3	3		1	6	3
9	56	47	12	20	26	35	4	22	105	21
15	120	110	35	43	32	34	29	45	222	48
1	29	34	11	16	13	28	6	29	76	31
2	7	9	4	3	10	2	4	2	20	10
	8	6	3	2	6	8	8	22	7	8
	3	3	1	2	3	5		5	13	6
2	29	31	9	8	8	15	2	17	52	20
2	41	47	12	9	5	28	13	15	77	17
1	2	2	2	4	2	1	1	8	6	3
4	20	14	2	10	11	9	6	12	34	9
1	8	7	1	1	1	2		5	22	
3	29	21	11	15	10	21	9	34	64	23
6	22	19	5	11	8	11	5	18	53	10
87	463	510	154	193	165	291	137	325	1,066	272
	3	2	3		1	2	1	3	6	5
		1			1	1			1	
						2			1	
3	3	2	1	1	4	2			3	1
1		2				1			8	
1		5	3	1	6	2	4	2	9	1
1						1			2	3
13	30	52	7	13	3	51	26	81	134	20
2	5	7	2	1	3	5	6	6	17	3
	1	3		2	3	4		2	10	
14	47	58	14	22	12	10	9	28	71	13
3	29	21	4	3	10	14	4	14	35	13
	3	3	1	2	1	1		2	11	5
10	36	42	4	16	19	21	4	5	76	23
10	126	105	32	34	36	57	32	40	253	30
6	25	27	14	13	10	9	7	22	63	18
2	14	15	3	2	1	6	2	4	16	5
3	2	9	3	5	2	8	1	14	12	3
	7	5	5	2	8	4	2	3	9	2
4	27	25	11	10	9	19	5	15	41	16
6	49	55	9	16	11	22	10	24	63	19
2	3	3	1	3	1	1	4		10	3
3	11	16	12	3	8	12	5	10	37	9
	4	10	1	5	1	5	2	6	39	8
4	24	20	16	27	9	22	11	28	77	18
	14	22	8	12	6	9	2	16	51	4

TABLE 37.—Proportion per 1,000 Total Deaths from Certain Principal Causes, for 1917 and

Cause of death	Thirty-one cities of 5,000 in 1910	North-ern Cal-ifornia					Central
		Eureka	San Francisco	Alameda	Berkeley	Oakland	
1917							
All causes	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	
Typhoid fever	5.1		3.2	10.3			2.3
Malarial fever	0.6		0.1				0.9
Smallpox	0.3		1.0				
Measles	4.2		5.2		2.1		6.4
Scarlet fever	1.2	5.0	1.5	10.3	2.1		0.5
Whooping cough	3.8		3.9	6.9	4.2		2.3
Diphtheria and croup	6.1		9.6	6.9	12.5		1.6
Influenza	4.8		1.1	10.3	4.2		5.5
Other epidemic diseases	3.3	5.0	3.1		2.1		4.1
Tuberculosis of lungs	111.1	69.7	103.6	72.2	56.5		90.6
Tuberculosis of other organs	16.4	29.8	15.4	17.2	20.9		13.7
Syphilis and gonorrhea	9.4		14.7				4.6
Cancer	34.0	69.7	99.1	79.0	94.1		80.6
Other general diseases	30.7	20.8	33.5	41.2	33.5		37.3
Meningitis	6.9	5.0	6.3	6.9			6.8
Other diseases of nervous system	75.5	61.7	65.0	103.1	104.6		74.2
Diseases of circulatory system	179.6	273.6	162.9	285.2	274.0		228.5
Pneumonia and broncho-pneumonia	88.9	79.6	101.9	55.0	73.2		91.9
Other diseases of respiratory system	19.0	14.9	21.9	13.7	10.5		17.7
Diarrhea and enteritis, under 2 years	16.3	5.0	9.9	10.3			13.7
Diarrhea and enteritis, 2 years and over	8.4		6.7	3.4	4.2		10.0
Other diseases of digestive system	58.9	61.7	57.2	58.4	73.2		63.7
Bright's disease and nephritis	81.6	109.4	101.2	65.3	77.4		72.8
Childbirth	10.3	14.9	8.5	10.3	10.5		10.9
Diseases of early infancy	35.7	29.8	28.8	17.2	50.2		48.7
Suicide	22.3	5.0	27.7	17.2	10.5		25.5
Other violence	69.9	84.6	73.2	61.9	60.7		56.9
All other causes	38.8	34.8	33.8	37.8	18.8		34.1
1916							
All causes	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	
Typhoid fever	4.2		2.2		6.6		4.5
Malarial fever	0.7		0.6				0.5
Smallpox	0.1						
Measles	0.9		0.4				
Scarlet fever	0.8	4.3	1.1				
Whooping cough	4.0		2.7		4.4		1.9
Diphtheria and croup	8.4		18.4	3.8	6.6		11.5
Influenza	4.7		2.1	3.8	8.7		5.7
Other epidemic diseases	3.0		2.2		6.6		2.4
Tuberculosis of lungs	112.0	94.4	108.6	57.5	50.2		97.8
Tuberculosis of other organs	17.6	34.3	17.4	23.0	8.7		23.9
Syphilis and gonorrhea	8.2	8.6	10.1	7.7	4.4		10.0
Cancer	82.5	81.5	85.1	76.6	115.7		83.5
Other general diseases	37.3	38.6	35.2	38.3	30.6		37.2
Meningitis	6.8	4.3	3.9	15.3	8.7		5.5
Other diseases of nervous system	61.8	60.1	51.5	76.6	74.3		64.9
Diseases of circulatory system	210.0	231.7	213.0	203.2	292.6		251.0
Pneumonia and broncho-pneumonia	83.5	51.5	95.5	76.6	65.5		79.2
Other diseases of respiratory system	16.9	17.2	17.2	11.5	21.8		22.4
Diarrhea and enteritis, under 2 years	16.2	4.3	10.6	7.7	10.9		9.6
Diarrhea and enteritis, 2 years and over	10.7	8.6	6.1		10.9		7.4
Other diseases of digestive system	53.6	68.7	56.8	65.1	41.5		60.2
Bright's disease and nephritis	78.7	73.0	83.2	84.3	76.4		67.4
Childbirth	8.4		7.0	11.5	10.9		7.2
Diseases of early infancy	33.0	38.6	28.2	30.7	34.9		45.3
Suicide	25.2	12.9	32.8	34.5	24.0		27.4
Other violence	69.1	115.9	75.0	76.6	48.0		69.2
All other causes	38.7	51.5	32.1	30.7	37.1		37.7

Selected Cities of 5,000 in 1910 (Reporting 200 Deaths), Arranged Geographically: 1916.

California					Southern California						
San Jose	Fresno	Bakersfield	Sacramento	Stockton	Los Angeles	Long Beach	Pasadena	Riverside	San Bernardino	San Diego	Santa Barbara
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
4.6	21.9	14.4	9.0	11.1	4.5	3.9	12.1	10.4	10.7	7.6	8.5
	1.8	14.4	1.6		0.5						
4.6	9.1		4.9	2.2	4.3				2.7	1.9	17.5
2.3	1.8		1.6		1.2					1.9	
4.6	23.7	2.9	7.4	2.2	2.8			13.8	2.7	1.0	
6.9	7.3	5.8	6.6	5.6	5.8	3.9			2.7	3.8	10.5
9.2	14.6	8.6	5.7	5.5	4.5	5.8	6.0	3.5	5.4	6.7	10.5
	3.7	2.9	2.5	6.7	4.3			3.5	5.4	1.0	7.0
80.6	102.2	144.1	115.6	105.4	140.8	60.3	104.4	121.1	227.9	125.0	105.3
11.5	25.5	28.8	21.3	18.9	17.0	11.7	12.0	24.2	16.1	9.5	10.5
6.9	3.7	5.8	8.2	14.4	8.2	2.0	8.0	6.9	10.7	7.6	
96.8	65.7	46.1	75.4	42.2	81.7	128.4	104.4	98.5	72.4	73.5	56.1
43.8	43.8	34.6	46.7	30.0	36.9	54.5	44.2	31.1	13.4	38.2	38.6
2.3	11.0	31.7	9.0	11.1	6.7	1.9	6.0	10.4	2.7	5.7	10.5
55.3	56.6	49.0	50.0	131.0	69.6	108.9	94.4	121.1	59.0	100.2	80.7
223.5	111.3	86.5	164.7	138.7	170.3	233.5	220.9	117.6	120.6	211.8	169.4
45.3	96.7	80.7	93.4	133.2	74.3	56.4	68.3	96.9	77.7	72.5	106.8
18.4	9.1	17.3	14.8	14.4	18.2	13.6	18.1	6.9	5.4	19.1	35.1
25.3	51.1	25.9	20.5	17.8	19.4	15.6	12.0	27.7	50.0	6.7	28.1
2.3	10.9	11.5	9.0	11.1	8.3	5.8	6.0	17.3	13.4	12.4	21.1
46.1	62.0	77.8	53.3	49.9	61.0	56.4	62.2	51.9	45.6	49.6	70.2
69.1	52.9	51.9	68.9	76.6	79.8	79.8	94.4	96.9	40.2	73.5	59.7
11.5	14.6	20.2	14.8	12.2	10.4	3.9	4.0	3.5	21.4	5.7	10.5
41.5	71.2	43.2	41.0	26.6	34.3	38.9	28.1	31.1	32.2	32.4	31.6
27.7	14.6	17.3	18.9	20.0	24.7	15.6	14.1	6.9	13.4	21.0	
50.7	78.5	152.7	83.6	82.1	66.1	56.4	42.2	72.7	91.1	61.1	80.7
39.2	34.7	25.9	42.6	31.1	45.4	42.8	38.2	38.1	48.2	50.6	35.1
1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
3.8	12.6	22.1	4.9	8.1	2.3	6.5	3.9	6.9	9.2	5.7	18.4
	2.5		3.9				2.0	3.4		1.0	
	2.5	13.8		1.4	1.3			6.9		0.9	
	2.5	2.8	1.0		0.6					0.9	
1.9	12.6	5.5		4.1	6.6	6.5	3.9	6.9		2.8	3.7
7.5	5.0	5.5	3.9	1.4	3.2		3.9	3.4		7.6	
13.2	12.6		3.9		4.3		9.8	6.9	6.2	8.5	3.7
1.9	7.5	5.5	4.9	1.4	3.7			8.4		1.9	11.0
77.1	93.0	105.0	118.9	102.6	140.6	64.8	102.0	175.3	249.2	126.9	73.5
11.3	22.6	33.1	20.5	21.6	15.1	10.8	13.7	17.2	18.5	16.1	11.0
	5.0	13.8	8.8	8.1	7.2	2.2	5.9	13.7	6.2	9.5	
107.1	70.4	41.4	78.9	51.3	85.5	101.5	113.7	34.4	86.1	67.2	47.8
35.7	25.1	30.4	30.2	29.7	40.8	62.8	41.2	48.1	43.1	33.1	47.8
5.6	15.1	8.3	6.8	9.4	7.2	6.5	5.9	3.4	6.2	10.4	18.4
82.7	60.3	30.4	55.5	137.6	57.0	77.8	82.4	72.2	15.4	72.0	84.6
197.4	125.6	138.1	171.5	157.9	193.3	272.1	205.9	195.9	123.1	239.6	294.1
97.7	98.0	60.1	102.3	116.0	74.9	54.0	52.9	30.9	67.7	39.7	61.2
15.0	7.5	19.3	17.5	16.2	13.3	30.2	29.4	20.6	12.8	15.2	18.4
32.0	45.2	22.1	24.4	17.5	21.9	4.3	17.7	27.5	43.1	11.4	11.0
13.2	10.1	11.1	15.6	22.9	13.8	15.1	9.8	13.7	9.2	8.5	7.3
89.5	80.4	69.1	62.4	52.6	51.9	58.3	49.0	61.3	46.1	38.8	58.8
71.4	65.3	63.5	79.9	70.2	84.3	106.8	107.8	75.6	73.8	59.7	60.9
5.6	5.0	2.8	8.8	6.8	10.1	6.5	5.0	3.4		9.5	11.0
50.7	62.8	52.5	51.7	28.3	34.9	23.8	31.4	41.8	30.8	35.0	33.1
30.1	15.1	30.4	23.4	17.5	23.8	8.7	19.6	17.2	18.5	36.9	29.4
41.3	100.5	143.6	51.7	74.2	61.9	51.8	39.2	75.6	86.1	72.9	68.2
58.3	35.2	60.8	48.7	43.2	40.7	30.2	43.1	30.9	49.2	48.3	14.7

V. Marriages.

TABLE 38.—Marriages Classified by Number in Order and

County	Total mar- riages	Number in order				Groom			Bride
		First of both parties	First of groom only	First of bride only	Second or over of both	Single	Widowed	Divorced	Single
California	36,283	25,079	4,842	2,822	3,540	22,021	2,949	3,413	27,901
Alameda	3,540	2,507	443	262	323	2,955	273	312	2,769
Alpine	4	3			1	3	1		3
Amador	39	33	5		1	38		1	33
Butte	275	213	25	7	30	238	14	23	220
Calaveras	30	26	3	1		29	1		27
Colusa	51	41	2	7	1	43	3	5	48
Contra Costa	257	179	29	27	22	208	12	37	206
Del Norte	51	39	1	5	6	40	4	7	44
El Dorado	37	27	4	3	3	31	6		30
Fresno	1,155	837	135	83	100	972	77	106	920
Glenn	65	54	4	5	2	58	4	3	59
Humboldt	339	241	45	20	33	286	25	28	261
Imperial	307	215	50	21	21	265	22	20	236
Inyo	62	42	9	3	8	51	6	5	45
Kern	494	327	97	38	39	417	34	43	365
Kings	251	194	31	11	15	225	15	11	215
Lake	31	22	5	2	2	27	3	1	24
Lassen	59	50	6	1	2	56	1	2	51
Los Angeles	7,888	5,519	893	659	817	6,412	788	688	6,178
Madera	130	89	16	8	17	106	12	13	97
Marin	612	359	121	64	68	480	46	86	423
Mariposa	16	7	4	2	3	11	1	4	9
Mendocino	174	124	28	7	15	152	12	10	131
Merced	184	134	21	11	18	155	16	13	145
Modoc	75	57	8	2	8	65	3	7	59
Mono	4	1	2		1	3		1	1
Monterey	315	196	53	36	30	249	26	40	232
Napa	263	182	44	15	22	226	15	22	197
Nevada	89	65	13	5	6	78	7	4	70
Orange	1,502	962	214	140	186	1,176	143	183	1,102
Placer	90	60	11	4	15	71	7	12	64
Plumas	31	18	7	2	4	25	3	3	20
Riverside	908	414	62	51	81	476	59	73	466
Sacramento	1,299	822	202	96	179	1,024	123	152	918
San Benito	109	82	11	7	9	93	2	14	80
San Bernardino	957	657	116	86	98	773	87	97	743
San Diego	1,690	1,112	276	122	180	1,388	134	168	1,234
San Francisco	6,746	4,722	957	504	563	5,679	465	602	5,226
San Joaquin	1,030	697	133	91	109	830	77	123	788
San Luis Obispo	258	190	35	13	20	225	16	17	213
San Mateo	505	314	96	44	51	410	41	54	356
Santa Barbara	406	271	56	35	44	327	39	40	306
Santa Clara	1,089	735	146	89	99	901	93	95	844
Santa Cruz	346	235	49	24	38	284	33	29	250
Shasta	157	111	23	12	11	134	11	12	123
Sierra	14	9	5			14			9
Siskiyou	215	139	39	16	21	178	13	24	155
Solano	319	199	60	28	32	259	25	35	227
Sonoma	545	389	58	49	58	438	54	53	429
Stanislaus	386	292	36	26	32	328	24	34	316
Sutter	51	41	6	1	3	47	1	3	43
Tehama	121	93	15	6	7	108	7	6	99
Trinity	8	5	2	1		7		1	6
Tulare	338	289	44	32	33	333	26	39	321
Tuolumne	58	42	11	3	2	53	1	4	45
Ventura	273	195	38	16	24	233	22	18	211
Yolo	156	101	29	10	16	130	9	17	111
Yuba	119	89	10	9	11	99	7	13	98

Marital Condition of Parties, with Per Cents, for Counties: 1917.

Bride		Per cent of marriages				Per cent of grooms			Per cent of brides		
Widowed	Divorced	First of both parties	First of groom only	First of bride only	Second or over of both	Single	Widowed	Divorced	Single	Widowed	Divorced
3,714	4,037	60.1	13.3	7.8	9.8	82.5	8.1	9.4	76.9	10.2	12.9
317	454	70.8	12.7	7.4	9.1	83.5	7.7	8.8	78.2	9.0	12.8
1		75.0			25.0	75.0	25.0		75.0	25.0	
3	3	84.6	12.8		2.6	97.4		2.6	84.6	7.7	7.7
28	27	77.5	9.1	2.5	10.9	86.5	5.1	8.4	80.0	10.2	9.8
3		86.7	10.0	3.3		96.7	3.3		90.0	10.0	
	3	80.4	3.9	13.7	2.0	84.3	5.9	9.8	94.1		5.9
19	32	69.6	11.3	10.5	8.6	80.9	4.7	14.4	80.2	7.4	12.4
3	4	76.5	1.9	9.8	11.8	78.4	7.9	13.7	86.3	5.9	7.8
4	3	73.0	10.8	8.1	8.1	83.8	16.2		81.1	10.8	8.1
123	112	72.5	11.7	7.2	8.6	84.1	6.7	9.2	79.7	10.6	9.7
2	4	83.1	6.1	7.7	8.1	89.2	6.2	4.6	90.8	3.1	6.1
31	47	71.1	13.3	5.9	9.7	84.4	7.4	8.2	77.0	9.1	13.9
41	30	70.0	16.3	6.9	6.8	86.3	7.2	6.5	76.9	13.3	9.8
6	11	67.8	14.5	4.8	12.9	82.2	9.7	8.1	72.6	9.7	17.7
68	66	66.2	18.2	7.7	7.9	84.4	6.9	8.7	73.9	12.7	13.4
14	32	77.3	12.3	4.4	6.0	89.6	6.0	4.4	81.7	5.6	12.7
4	3	71.0	16.1	6.5	6.4	87.1	9.7	3.2	77.4	12.9	9.7
4	4	84.7	10.2	1.7	3.4	94.9	1.7	3.4	86.4	6.8	6.8
851	859	70.0	11.3	8.3	10.4	81.3	10.0	8.7	78.3	10.8	10.9
16	17	68.5	12.3	6.1	13.1	80.8	9.2	10.0	74.6	12.3	13.1
71	118	58.7	19.8	10.4	11.1	78.4	7.5	14.1	69.1	11.6	19.8
2	5	43.8	25.0	12.5	18.7	68.8	6.2	25.0	56.3	12.5	31.2
18	25	71.3	16.1	4.0	8.6	87.4	6.9	5.7	75.3	10.3	14.4
17	22	72.8	11.4	6.0	9.8	84.2	8.7	7.1	78.8	9.2	12.0
8	8	76.0	10.7	2.6	10.7	86.7	4.0	9.3	78.6	10.7	10.7
1	2	25.0	50.0		25.0	75.0		25.0	25.0	50.0	
34	49	62.2	16.8	11.5	9.5	79.0	8.3	12.7	73.6	10.8	15.6
31	35	69.2	16.7	5.7	8.4	85.9	5.7	8.4	74.9	11.8	13.3
8	11	73.0	14.6	5.6	6.8	87.6	7.9	4.5	78.6	9.0	12.4
199	201	64.0	14.3	9.3	12.4	78.3	9.5	12.2	73.4	13.2	13.4
15	11	68.7	12.2	4.4	16.7	78.9	7.8	13.3	71.1	16.7	12.2
6	5	58.1	22.6	6.4	12.9	80.6	9.7	9.7	64.5	19.4	16.1
57	86	68.1	10.2	8.4	13.3	78.3	9.7	12.0	76.5	9.4	14.1
165	216	63.3	15.5	7.4	13.8	78.8	9.5	11.7	70.7	12.7	16.6
9	11	75.2	10.1	6.4	8.3	85.3	1.8	12.9	81.6	8.3	10.1
110	104	68.7	12.1	9.0	10.2	80.8	9.1	10.1	77.6	11.5	10.9
202	254	65.8	16.3	7.2	10.7	82.1	7.9	10.0	73.0	12.0	15.0
005	915	70.0	14.2	7.5	8.3	84.2	6.9	8.9	77.5	9.0	13.5
98	144	67.7	12.9	8.8	10.6	80.6	7.5	11.9	76.5	9.5	14.0
20	35	73.6	13.6	5.0	7.8	87.2	6.2	6.6	78.7	7.7	13.6
51	96	62.2	19.0	8.7	10.1	81.2	8.1	10.7	70.9	10.1	19.0
48	52	66.8	13.8	8.6	10.8	80.5	9.6	9.9	75.4	11.8	12.8
107	138	69.3	13.4	8.2	9.1	82.7	8.6	8.7	77.5	9.8	12.7
37	50	67.9	14.2	6.9	11.0	82.1	9.5	8.4	74.9	10.7	14.4
16	18	70.7	14.7	7.6	7.0	85.4	7.0	7.6	78.3	10.2	11.5
3	2	64.3	35.7			100.0			64.3	21.4	14.3
19	41	64.7	18.1	7.4	9.8	82.8	6.0	11.2	72.1	8.8	19.1
36	56	62.4	18.8	8.8	10.0	81.2	7.8	11.0	71.2	11.3	17.5
45	71	69.7	10.7	9.0	10.6	80.4	9.9	9.7	78.7	8.3	13.0
35	33	75.7	9.3	6.7	8.3	85.0	6.2	8.8	82.4	9.1	8.5
4	5	80.4	11.8	1.9	5.9	92.1	2.0	5.9	82.4	7.8	9.8
11	11	76.9	12.4	4.9	5.8	89.3	5.8	4.9	81.8	9.1	9.1
1	1	62.5	25.0	12.5		87.5		12.5	75.0	12.5	12.5
29	48	72.6	11.1	8.0	8.3	83.7	6.5	9.8	80.6	7.3	12.1
4	9	72.4	19.0	5.2	3.4	91.4	1.7	6.9	77.6	6.9	15.5
84	28	71.4	13.9	5.9	8.8	85.3	8.1	6.6	77.3	12.4	10.3
15	30	64.7	18.6	6.4	10.3	83.3	5.8	10.9	71.2	9.6	19.2
10	11	74.8	8.4	7.6	9.2	83.2	5.9	10.0	82.4	8.4	9.2

TABLE 20.—Marriages Classified by Number in Order and

County	Total mar- riages	Number in order					Class		Single
		First & second births	First & third births	First & fourth births	Second of first of both	Second of both	Single	Married	
California	20,308	21,288	2,980	2,818	2,801	25,287	2,765	2,888	21,288
Alameda	2,774	1,982	317	220	254	2,279	282	55	2,774
Alpine									
Amador	51	37	4	6	4	41	6	4	48
Butte	191	143	19	12	28	158	19	19	175
Calaveras	23	25	4	1	3	29	2	2	26
Colusa	40	32	4	1	3	38	1	3	35
Contra Costa	228	150	27	21	19	188	17	23	189
Del Norte	30	19	7	2	2	28	1	3	21
El Dorado	37	24	5	3	5	29	3	5	27
Fresno	1,950	783	28	70	98	881	82	88	888
Glenn	69	53	7	3	6	60	6	3	56
Humboldt	329	250	22	23	24	282	25	22	272
Imperial	244	177	35	15	16	213	14	17	192
Inyo	54	34	8	6	6	42	5	7	40
Kern	498	325	75	31	54	400	47	20	356
Kings	183	145	16	9	12	161	12	10	154
Lake	32	25	2	2	3	27	1	4	27
Lassen	97	43	9	4	1	52	1	4	47
Los Angeles	6,910	4,701	81	625	784	5,801	777	682	5,825
Madera	118	72	19	5	22	91	16	11	77
Marin	578	338	107	50	71	445	41	80	397
Mariposa	10	6	2		2	8		2	6
Mendocino	185	133	18	15	16	151	12	22	151
Merced	158	116	13	8	18	129	14	10	124
Modoc	56	20	7	2	10	43	6	6	36
Mono	2	2				2			2
Monterey	295	139	27	16	25	168	30	22	152
Napa	252	170	34	22	25	204	21	27	192
Nevada	85	60	11		5	80	2	3	60
Orange	1,467	915	220	126	190	1,141	154	172	1,061
Placer	104	78	14	6	6	92	6	6	84
Plumas	29	15	6	3	5	21	4	4	18
Riverside	484	308	60	51	58	375	54	55	357
Sacramento	1,145	787	183	80	116	940	85	100	846
San Benito	71	46	11	9	5	67	3	11	55
San Bernardino	821	538	118	78	92	661	88	82	616
San Diego	1,322	832	201	131	158	1,083	144	145	988
San Francisco	5,981	4,284	816	434	488	5,089	427	465	4,718
San Joaquin	808	557	107	51	91	684	46	96	608
San Luis Obispo	211	163	21	12	15	184	20	7	175
San Mateo	328	197	60	28	32	268	18	42	225
Santa Barbara	290	210	29	25	27	238	30	22	224
Santa Clara	878	627	106	77	68	733	83	62	704
Santa Cruz	283	198	41	30	38	237	32	24	226
Shasta	147	86	31	7	23	117	6	24	93
Sierra	9	8		1		8		1	9
Siskiyou	171	110	29	16	16	139	8	24	126
Solano	271	196	35	21	19	231	13	27	217
Sonoma	442	305	54	38	45	360	30	44	343
Stanislaus	297	227	23	22	25	250	24	33	249
Sutter	31	22	2	1	6	24	4	3	23
Tehama	98	64	12	8	12	76	10	10	73
Trinity	6	2	2		2	4	1	1	2
Tulare	369	297	32	15	32	322	23	24	315
Tuolumne	63	42	18	2	6	55	5	3	44
Ventura	183	127	26	12	18	153	14	16	139
Yolo	123	93	14	7	9	107	7	9	100
Yuba	115	82	15	5	13	97	4	14	87

Marital Condition of Parties, with Per Cents, for Counties: 1916.

Bride		Per cent of marriages				Per cent of grooms			Per cent of brides		
Widowed	Divorced	First of both parties	First of groom only	First of bride only	Second or over of both	Single	Widowed	Divorced	Single	Widowed	Divorced
3,236	3,844	69.0	12.9	8.1	10.0	81.9	8.9	9.2	77.2	10.4	12.4
234	339	70.7	11.4	8.6	9.3	82.2	8.7	9.1	79.3	8.5	12.2
4	4	72.6	7.8	11.8	7.8	80.4	11.8	7.8	84.3	7.9	7.8
23	13	74.9	5.2	6.3	13.6	80.1	10.0	9.9	81.2	12.0	6.8
4	3	75.8	12.1	3.0	9.1	87.9	6.1	6.0	78.8	12.1	9.1
1	6	80.0	10.0	2.5	7.5	90.0	2.5	7.5	82.5	2.5	15.0
20	26	70.4	11.9	9.3	8.4	82.3	7.5	10.2	79.6	8.9	11.5
3	6	63.3	23.3	6.7	6.7	86.7	3.3	10.0	70.0	10.0	20.0
5	5	64.9	13.5	8.1	13.5	78.4	8.1	13.5	73.0	13.5	13.5
91	106	74.9	9.3	6.6	9.2	84.1	7.8	8.1	81.5	8.6	9.9
8	5	76.8	10.1	4.4	8.7	87.0	8.7	4.3	81.2	11.6	7.2
25	31	76.0	9.7	7.0	7.3	85.7	7.6	6.7	83.0	7.6	9.4
28	24	72.5	14.8	6.1	6.6	87.3	5.7	7.0	78.7	11.5	9.8
8	6	63.0	14.8	11.1	11.1	77.8	9.2	13.0	74.1	14.8	11.1
63	67	66.9	15.4	6.4	11.3	82.3	9.7	8.0	73.2	13.0	13.8
18	11	79.2	8.8	4.9	7.1	88.0	6.5	5.5	84.2	9.8	6.0
1	4	78.1	6.3	6.2	9.4	84.4	3.1	12.5	84.4	3.1	12.5
2	8	75.4	15.8	7.0	1.8	91.2	1.8	7.0	82.5	3.5	14.0
800	785	68.0	11.6	9.0	11.4	79.6	11.2	9.2	77.1	11.6	11.3
19	22	61.0	16.1	4.2	18.7	77.1	13.6	9.3	65.2	16.1	18.7
81	97	58.8	18.6	10.3	12.3	77.4	7.1	15.5	69.0	14.1	16.9
	4	60.0	20.0		20.0	60.0		20.0	60.0		40.0
15	19	71.9	9.7	9.7	8.7	81.6	6.5	11.9	81.6	8.1	10.3
13	16	75.8	8.5	5.2	10.5	84.3	9.2	6.5	81.0	8.5	10.5
6	11	65.6	12.7	3.6	18.2	78.2	10.9	10.9	69.1	10.9	20.0
		100.0				100.0			100.0		
19	34	66.3	13.2	7.8	12.7	79.5	9.8	10.7	74.1	9.3	16.6
28	32	67.5	13.5	8.7	10.3	81.0	8.3	10.7	76.2	11.1	12.7
6	10	81.2	12.9		5.9	94.1	2.4	3.5	81.2	7.0	11.8
190	226	62.4	15.4	9.3	12.9	77.8	10.5	11.7	71.6	13.0	15.4
6	14	75.0	13.4	5.8	5.8	88.4	5.8	5.8	80.8	5.8	13.4
5	6	51.7	20.7	10.4	17.2	72.4	13.8	13.8	62.1	17.2	20.7
63	64	63.2	14.3	10.5	12.0	77.5	11.1	11.4	73.8	13.0	13.2
119	180	66.1	16.0	7.8	10.1	82.1	7.4	10.5	73.9	10.4	15.7
6	10	64.8	15.5	12.7	7.0	80.3	4.2	15.5	77.5	8.4	14.1
116	89	65.5	13.8	9.5	11.2	79.3	10.7	10.0	75.0	14.1	10.9
160	190	62.9	15.2	9.9	12.0	78.1	10.9	11.0	72.8	12.8	14.4
511	752	71.6	13.4	7.3	7.7	83.1	7.1	7.8	78.9	8.5	12.6
76	122	69.1	13.3	6.3	11.3	82.4	5.7	11.9	75.5	9.4	15.1
18	18	77.3	9.9	5.7	7.1	87.2	9.5	3.3	83.0	8.5	8.5
42	50	60.4	21.2	8.6	9.8	81.6	5.5	12.9	69.0	12.9	18.1
31	25	72.1	10.0	8.6	9.3	82.1	10.3	7.6	80.7	10.7	8.6
91	83	71.4	12.1	8.8	7.7	83.5	9.4	7.1	80.2	10.4	9.1
32	35	66.9	14.0	10.2	8.9	80.9	10.9	8.2	77.1	10.9	12.0
27	27	58.5	21.1	4.8	15.6	79.6	4.1	16.3	63.2	18.4	18.4
		88.9		11.1		88.9		11.1	100.0		
14	31	64.3	17.0	9.4	9.3	81.3	4.7	14.0	73.7	8.2	18.1
21	33	72.3	12.9	7.8	7.0	85.2	4.8	10.0	80.1	7.7	12.2
46	53	69.0	12.2	8.6	10.2	81.2	8.8	10.0	77.6	10.4	12.9
25	23	76.4	7.8	7.4	8.4	84.2	8.1	7.7	83.8	8.4	7.8
2	6	71.0	6.4	3.2	19.4	77.4	12.9	9.7	74.2	6.4	19.4
10	14	66.7	12.5	8.3	12.5	79.2	10.4	10.4	75.0	10.4	14.6
1	3	33.4	33.3		33.3	66.7	16.7	16.8	33.3	16.7	50.0
34	30	78.6	8.7	4.0	8.7	87.3	6.2	6.5	82.7	9.2	8.1
8	11	66.7	20.6	3.2	9.5	87.3	7.9	4.8	60.8	12.7	17.5
26	18	60.4	14.2	6.6	9.8	83.6	7.7	8.7	76.0	14.2	9.8
7	16	75.6	11.4	5.7	7.3	87.0	5.7	7.3	81.3	5.7	13.0
15	13	71.3	13.0	4.4	11.3	84.3	3.5	12.2	75.7	13.0	11.3

TABLE 40.—Brides Classified by Race and Nativity, with Per Cent

County	Total	Total brides, 1917				Non-Cal. celan.
		Total	White			
			Born in California	Born in other states	Foreign born	
California	36,283	35,224	13,578	15,632	6,014	1,059
Alameda	3,540	3,437	1,699	1,103	645	103
Alpine	4	4	1	3		
Amador	39	38	31	2	5	1
Butte	275	271	169	87	15	4
Calaveras	30	30	21	7	2	
Colusa	51	50	41	5	4	1
Contra Costa	257	256	122	89	45	1
Del Norte	51	46	22	22	2	5
El Dorado	37	36	27	8	1	1
Fresno	1,155	1,132	396	516	220	23
Glenn	65	65	39	23	3	
Humboldt	339	323	194	68	61	16
Imperial	307	278	47	168	63	29
Inyo	62	60	31	26	3	2
Kern	494	487	170	266	51	7
Kings	251	241	86	101	54	10
Lake	31	30	19	8	3	1
Lassen	59	58	34	24		1
Los Angeles	7,888	7,608	1,477	4,830	1,296	285
Madera	130	130	58	50	22	
Marin	612	609	330	186	93	3
Mariposa	16	15	7	7	1	1
Mendocino	174	172	122	28	22	2
Merced	184	178	71	55	52	6
Modoc	75	73	51	21	2	2
Mono	4	4	3	1		
Monterey	315	314	189	90	35	1
Napa	263	262	152	85	25	1
Nevada	89	89	65	17	7	
Orange	1,502	1,478	323	972	183	24
Placer	99	99	52	27	10	1
Plumas	31	29	16	11	2	2
Riverside	608	591	136	386	69	17
Sacramento	1,299	1,265	649	442	174	34
San Benito	109	109	70	27	12	
San Bernardino	957	936	181	599	165	21
San Diego	1,690	1,682	373	1,065	294	28
San Francisco	6,746	6,415	2,879	1,981	1,555	331
San Joaquin	1,030	1,015	532	369	114	15
San Luis Obispo	258	257	165	65	27	1
San Mateo	505	500	248	164	88	5
Santa Barbara	406	400	148	189	72	6
Santa Clara	1,089	1,076	543	345	188	13
Santa Cruz	346	345	198	100	47	1
Shasta	157	150	85	57	8	7
Sierra	14	14	9	2	3	
Siskiyou	215	202	102	88	12	13
Solano	319	306	162	99	45	13
Sonoma	545	545	349	122	74	
Stanislaus	386	386	166	154	66	
Sutter	51	50	32	15	3	1
Tehama	121	118	56	33	9	1
Trinity	8	8	6	2		
Tulare	396	393	139	199	55	3
Tuolumne	58	58	36	15	7	
Ventura	278	268	98	100	70	3
Yolo	156	151	94	47	10	5
Yuba	119	117	67	40	10	2

Distribution of White Brides by Nativity, for Counties: 1917 and 1916.

Total brides, 1916						Non-Cal.- casual.	Per cent of white brides					
Total	White				Born in California		Born in California		Born in other states		Foreign born	
	Total	Born in California	Born in other states	Foreign born			1917	1916	1917	1916	1917	1916
30,006	29,705	11,050	13,137	5,518	1,291	38.5	37.2	44.4	44.2	17.1	18.6	
2,774	2,710	1,320	884	556	64	49.1	48.7	32.1	30.8	18.8	20.5	
51	51	35	8	8		25.0		75.0				
191	189	103	81	5	2	81.6	68.6	5.3	15.7	18.1	15.7	
33	33	29	1	3		62.4	54.5	32.1	42.9	5.5	2.6	
40	39	23	12	4	1	70.0	87.9	23.3	3.0	6.7	9.1	
226	223	104	76	43	3	82.0	59.0	10.0	30.8	8.0	10.2	
30	25	9	16		5	47.6	46.6	34.8	34.1	17.6	19.3	
37	37	25	9	3		47.8	36.0	47.8	64.0	4.4		
1,059	1,035	333	465	237	24	75.0	67.6	22.2	24.3	2.8	8.1	
69	69	34	30	5		35.0	32.2	45.6	44.9	19.4	22.9	
329	312	173	71	68	17	60.0	49.3	35.4	43.5	4.6	7.2	
244	222	37	140	45	22	60.1	55.4	21.0	22.8	18.9	21.8	
54	50	17	29	4	4	16.9	16.7	60.4	63.0	22.7	23.3	
486	471	172	251	48	15	51.7	34.0	43.3	58.0	5.0	8.0	
183	180	68	58	54	3	34.9	36.5	54.6	53.3	10.5	10.2	
32	30	19	10	1	2	35.7	37.8	41.9	32.2	22.4	30.0	
57	55	38	16	1	2	63.3	63.4	26.7	33.3	10.0	3.3	
6,910	6,675	1,213	4,313	1,149	235	58.6	69.1	41.4	29.1		1.8	
118	114	49	45	20	4	19.4	18.2	63.5	64.6	17.1	17.2	
575	570	291	177	102	5	44.6	43.0	38.5	39.5	16.9	17.5	
10	8	3	5			54.2	51.1	30.5	31.0	15.3	17.9	
185	172	108	39	25	13	46.7	37.5	46.7	62.5	6.6		
153	152	65	48	39	1	70.9	62.8	16.3	22.7	12.8	14.5	
55	55	33	21	1		39.9	42.8	30.9	31.6	29.2	25.6	
2	2	1	1			60.9	60.0	27.4	38.2	2.7	1.8	
205	202	116	62	24	3	75.0	50.0	25.0	50.0			
252	252	137	78	37		60.2	57.4	28.7	30.7	11.1	11.9	
85	84	58	16	10	1	56.0	54.4	32.5	30.9	9.5	14.7	
1,467	1,451	301	970	180	16	73.0	69.1	19.1	19.0	7.9	11.9	
104	99	60	28	11	5	21.8	20.7	65.8	66.9	12.4	12.4	
29	27	15	9	3	2	58.4	60.6	30.4	28.3	11.2	11.1	
484	467	101	301	65	17	55.2	55.6	37.9	33.3	6.9	11.1	
1,145	1,119	592	379	148	26	23.0	21.6	65.3	64.5	11.7	13.9	
71	71	48	12	11		51.3	52.9	34.9	33.9	13.8	13.2	
821	800	162	507	131	21	64.2	67.6	24.8	16.9	11.0	15.5	
1,322	1,291	246	830	215	31	19.4	20.2	63.0	63.4	17.6	16.4	
5,961	5,308	2,363	1,457	1,488	673	22.4	19.1	65.3	64.3	12.3	16.6	
806	796	426	276	93	11	44.9	44.5	30.9	27.5	24.2	28.0	
211	210	133	49	28	1	52.4	53.6	38.4	34.7	11.2	11.7	
326	321	142	105	74	5	64.2	63.4	25.3	23.3	10.5	13.3	
290	289	130	108	51	1	49.6	44.2	32.8	32.7	17.6	23.1	
878	867	438	266	163	11	37.0	45.0	45.0	37.4	18.0	17.6	
293	289	156	95	38	4	50.5	50.5	32.0	30.7	17.5	18.8	
147	145	75	48	22	2	57.4	54.0	29.0	32.9	13.6	13.1	
9	9	8		1		56.7	51.7	38.0	33.1	5.3	15.2	
171	156	60	76	20	15	64.3	88.9	14.3		21.4	11.1	
271	267	166	61	40	4	50.5	38.5	43.6	48.7	5.9	12.8	
442	442	200	133	49		52.9	62.2	32.4	22.8	14.7	15.0	
297	293	104	118	71	4	64.0	58.8	22.4	30.1	13.6	11.1	
31	31	20	11			43.0	35.5	39.9	40.3	17.1	24.2	
96	95	52	38	5	1	64.0	64.5	30.0	35.5	6.0		
6	6	5	1			47.5	54.7	44.9	40.0	7.6	5.3	
369	367	183	189	45	2	75.0	83.3	25.0	16.7			
63	63	37	15	11		35.4	36.2	50.6	51.5	14.0	12.3	
183	176	68	73	40	7	62.1	58.7	25.8	23.8	12.1	17.5	
123	121	74	33	14	2	36.6	35.8	37.3	41.5	26.1	22.7	
115	113	67	37	9	2	62.3	61.1	31.1	27.3	6.6	11.6	
						57.3	59.3	34.2	32.7	8.5	8.0	

TABLE 41.—Brides Classified by Race, Nativity

County	Single brides										Total	Total
	Total	White			Non-Caucasian							
		Born in California	Born in states	Foreign born	Negro	Indian	Chinese	Japanese				
California	27,901	27,101	11,387	11,304	4,510	265	77	43	315	3,714	3,588	
Alameda	2,769	2,700	1,400	809	491	50	1	9	9	327	301	
Alpine	3	3	1	2						1	1	
Amador	33	32	27	1	4		1			3	3	
Butte	220	218	144	64	10		1		1	26	26	
Calaveras	27	27	18	7	2					3	3	
Colusa	48	47	30	4	4		1					
Contra Costa	206	205	105	63	37	1				19	19	
Del Norte	44	30	19	18	2		5			3	3	
El Dorado	30	29	25	4			1			4	4	
Fresno	980	908	333	402	168	1	5	1	10	123	118	
Glenn	50	50	36	20	3					2	2	
Humboldt	261	251	170	36	45		10			31	28	
Imperial	236	216	35	136	45	18	1		1	41	36	
Inyo	45	43	26	15	2		2			6	6	
Kern	305	361	123	191	37	4				63	62	
Kings	365	198	70	79	40	4	1		2	14	12	
Lake	24	23	16	7			1			4	4	
Lassen	51	50	30	20			1			4	4	
Los Angeles	6,178	5,965	1,280	3,097	988	173	1	4	35	851	813	
Madera	97	97	52	32	13					16	16	
Marin	423	423	258	165	60					71	70	
Mariposa	9	8	6	2			1			2	2	
Mendocino	131	130	102	14	14		1			18	17	
Merced	145	142	63	37	42	3				17	14	
Modoc	50	57	44	12	1		2			8	8	
Mono	1	1	1							1	1	
Monterey	232	231	161	47	23				1	34	34	
Napa	197	196	122	60	14	1				31	31	
Nevada	70	70	57	10	3					8	8	
Orange	1,102	1,067	271	691	125	14	1			190	191	
Placer	64	64	41	17	6					15	14	
Plumas	20	19	13	5	1		1			6	5	
Riverside	465	453	118	277	58	2	10			57	54	
Sacramento	918	808	519	287	107	12			13	165	158	
San Benito	89	80	60	20	9					9	9	
San Bernardino	743	732	160	442	130	7	4			110	105	
San Diego	1,234	1,212	305	761	146	12	9		1	202	199	
San Francisco	5,226	4,988	2,370	1,364	1,214	29	4	23	233	606	580	
San Joaquin	788	779	433	261	85	3	1	4	1	98	96	
San Luis Obispo	503	503	136	45	22					30	19	
San Mateo	358	354	195	103	56	2		2		51	51	
Santa Barbara	306	303	121	121	61	3				48	47	
Santa Clara	844	835	448	258	129	5		1	3	107	104	
Santa Cruz	250	250	163	68	33					37	37	
Shasta	123	118	71	40	7		5			16	14	
Sierra	9	9	7		2					3	3	
Siskiyou	155	146	79	59	8	6	3			19	14	
Solano	227	218	130	64	24	9				34	33	
Sonoma	129	129	57	85	47					45	45	
Stanislaus	318	318	139	124	55					35	35	
Stutter	42	41	27	13	1				1	4	4	
Tehama	90	97	43	47	7		2			11	11	
Tenaw	6	6	6							1	1	
Tulare	321	318	119	146	51	2			1	29	27	
Tuolumne	45	45	30	11	4					4	4	
Ventura	211	206	95	71	38	2			1	34	32	
Yolo	111	107	71	30	6	1	1		2	15	15	
Yuba	98	97	57	33	7	1				10	9	

and Marital Condition, for Counties: 1917.

Widowed brides							Divorced brides								
White		Non-Caucasian					Total	White		Non-Caucasian					
Born in California.	Born in other states.	Foreign born.	Negro.	Indian.	Chinese.	Japanese.		Total	Born in California.	Born in other states.	Foreign born.	Negro.	Indian.	Chinese.	Japanese.
823	1,811	932	115	8	5	20	4,668	4,557	1,468	2,517	572	87	9	1	14
94	120	87	15		1		454	436	196	174	67	17			1
2	1	1					3	3	2	1					
9	13	4	2				27	27	16	10	1				
3							3	3	2	1					
4	9	6					32	32	13	17	2				
2	1						4	4	1	3					
	3	1					3	3	2	1					
20	55	43	1		1	3	112	111	43	59	9		1		
1	1						4	4	2	2					
12	10	6		3			47	44	12	22	10		3		
3	17	16	5				30	26	9	15	2	4			
2	3	1					11	11	3	8					
19	34	9	1				66	64	18	31	5	2			
4	5	3	2				32	31	12	17	2	1			
	1	3					3	3	3						
2	2						4	4	2	2					
79	526	208	37			1	850	825	118	607	100	28	1	1	4
3	7	6					17	17	3	11	3				
18	32	20	1				118	116	54	49	13	2			
1	1	1					5	5		5					
9	2	6		1			25	25	11	12	2				
	9	5	3				22	22	8	9	5				
3	5						8	8	4	3	1				
1							2	2	1	1					
13	14	7					49	49	15	29	5				
14	11	6					35	35	16	14	5				
4	2	2					11	11	4	5	2				
24	127	40	8				201	200	28	154	18	1			
7	6	1		1			11	11	4	4	3				
1	3	1		1			5	5	2	3					
6	40	8	3				86	84	12	60	3	2			
53	71	34	3			4	216	214	77	104	33	1			1
4	3	2					11	11	6	4	1				
10	70	25	4	1			104	99	11	78	10	3	2		
29	136	34	2	1			254	251	39	188	24	3			
177	211	192	14		3	8	915	897	332	416	149	11			7
35	44	17	2				144	140	64	64	12	4			
6	9	4				1	35	35	23	11	1				
12	23	16					96	95	41	38	16	1			
11	27	9	1				52	50	16	32	2	2			
34	33	37	3				138	137	61	54	22	1			
15	12	10					50	49	20	25	4				1
6	9	1					18	16	8	8		1	1		
1	1	1					2	2	1	1					
6	7	3	3				41	40	17	22	1		1		
9	14	10	3				56	55	23	21	11	1			
13	15	17					71	71	39	22	10				
12	17	6					33	33	15	13	5				
3		1					5	5	2	2	1				
6	4	1					11	10	7	2	1	1			
	1						1	1		1					
4	20	3				2	48	48	16	31	1				
2	1	1					9	9	4	3	2				
6	14	12	1			1	28	28	7	15	6				
4	7	4					30	29	19	10		1			
5	3	1	1				11	11	5	4	2				

TABLE 42.—Brides Classified by Race, Nativity

County	Single brides										Total
	Total	Total	White			Non-Caucasian				Total	
			Born in California	Born in other states	Foreign born	Negro	Indian	Chinese	Japanese		
California	23,916	22,864	9,216	9,470	4,178	272	81	41	658	3,236	3,066
Alameda	2,201	2,157	1,121	602	434	32	2	5	5	234	223
Alpine											
Amador	43	43	32	4	7					4	4
Butte	155	154	87	62	5				1	23	22
Calaveras	26	26	24		2					4	4
Colusa	33	32	18	11	3	1				1	1
Contra Costa	180	178	80	55	34	1			1	20	19
Del Norte	21	17	7	10			4			3	2
El Dorado	27	27	23	4						5	5
Fresno	863	844	286	370	188	6	11		2	91	87
Glenn	56	56	28	23	5					8	8
Humboldt	273	260	155	49	56		13			25	22
Imperial	192	179	35	107	37	12			1	28	23
Inyo	40	36	13	22	1		4			8	8
Kern	356	344	135	175	34	12				63	60
Kings	154	152	58	43	51			2		18	17
Lake	27	25	16	8	1		2			1	1
Lassen	47	45	33	12			2			2	2
Los Angeles	5,325	5,171	1,090	3,273	868	122	1	1	30	800	749
Madera	77	76	40	24	12	1				19	17
Marin	397	394	232	101	61	3				81	80
Mariposa	6	4	1	3			2				
Mendocino	151	141	90	30	21	1	8	1		15	13
Merced	124	123	54	39	30				1	13	13
Modoc	38	38	25	12	1					6	6
Mono	2	2	1	1							
Monterey	152	150	89	45	16	2				19	18
Napa	192	192	117	47	28					28	28
Nevada	60	68	49	9	10		1			6	6
Orange	1,051	1,041	243	678	120	10				190	181
Placer	84	80	50	23	7		1		3	6	6
Plumas	18	16	10	5	1		2			5	5
Riverside	357	345	88	214	43	5	5	1	1	63	60
Sacramento	846	831	481	244	106	7	1	1	6	119	112
San Benito	55	55	38	8	9					6	6
San Bernardino	616	603	139	367	97	7	6			116	112
San Diego	963	937	210	571	156	18	5	2	1	169	168
San Francisco	4,718	4,669	1,939	1,007	1,143	16	1	24	568	511	490
San Joaquin	608	599	337	193	69	3		1	5	76	75
San Luis Obispo	175	175	124	32	19					18	17
San Mateo	225	224	110	60	54			1		42	40
Santa Barbara	234	234	118	73	43					31	30
Santa Clara	704	697	373	193	128	2			5	91	89
Santa Cruz	226	222	140	54	28			1	3	32	32
Shasta	93	91	55	20	16		2			27	27
Sierra	9	9	8		1						
Siskiyou	126	115	44	52	19	3	7	1		14	12
Solano	217	214	139	44	31	3				21	21
Sonoma	343	343	221	80	33					46	46
Stanislaus	249	248	87	99	62	1				25	23
Sutter	23	23	15	8						2	2
Tehama	72	71	42	26	3	1				10	10
Trinity	2	2	2							1	1
Tulare	306	304	115	157	32				1	34	33
Tuolumne	44	44	29	10	5					8	8
Ventura	139	134	51	54	29	2			3	26	25
Yolo	100	99	67	21	11		1			7	6
Yuba	87	85	53	24	8	1			1	15	13

and Marital Condition, for Counties: 1916.

Widowed brides							Divorced brides									
Born in California.	White		Non-Caucasian				Total	Total	White				Non-Caucasian			
	Born in states.	Foreign born.	Negro.	Indian.	Chinese.	Japanese.			Born in California.	Born in other states.	Foreign born.	Negro.	Indian.	Chinese.	Japanese.	
662	1,597	836	97	12	4	28	3,844	3,746	1,172	2,070	504	73	6		19	
60	90	78	11				339	330	139	142	49	9				
2	1	1					4	4	1	3						
9	13			1			13	13	7	6						
2	1	1					3	3	3							
1							6	6	4	1	1					
5	8	6	1				26	26	10	13	3					
2				1			6	6		6						
	4	1					5	5	2	1	2					
20	37	30	2			2	105	104	27	58	19	1				
4	4						5	5	2	3						
6	10	6		3			31	30	12	12	6		1			
1	16	6	5				24	20	1	17	2	4				
2	3	3					6	6	2	4						
13	36	11	3				67	67	24	40	3					
6	9	2	1				11	11	4	6	1					
1							4	4	2	2						
	1	1					8	8	5	3						
69	490	190	41	1		9	785	755	114	550	91	27			3	
4	11	2	2				22	21	5	10	6				1	
22	35	23	1				97	96	37	41	18	1				
							4	4	2	2						
7	4	2		2			19	18	11	5	2		1			
2	2	9					16	16	9	7						
2	4						11	11	6	5						
7	6	5				1	34	34	20	11	3					
7	15	6					32	32	13	16	3					
3	3						10	10	6	4						
20	130	36	3	1			226	224	38	162	24	2				
4		2					14	13	6	5	2				1	
2	2	1					6	6	3	2	1					
4	37	19	3				64	62	9	50	3	1	1			
36	55	21	4			3	180	176	75	80	21	3			1	
2	3	1					10	10	8	1	1					
14	74	24	3	1			80	85	9	66	10	3			1	
14	111	43	1				190	186	22	148	16	3	1			
139	161	190	8		4	9	752	729	285	289	155	12			11	
33	32	10				1	122	121	56	51	14	1				
4	6	7					18	18	5	11	2					
8	21	11	2				59	57	24	24	9	2				
5	19	6				1	25	25	7	16	2					
30	27	32	2				83	81	35	43	3	1			1	
9	17	6					35	35	7	24	4					
12	12	3					27	27	8	16	3					
6	6			2			31	29	10	18	1		2			
9	9	3					33	32	18	8	6	1				
15	19	12					53	53	24	25	4					
10	9	4	2				23	22	7	10	5	1				
1	1						6	6	4	2						
3	5	2					14	14	7	7						
1							3	3	2	1						
8	15	10				1	30	30	10	17	3					
1	3	4					11	11	7	2	2					
4	11	10	1				18	17	8	8	1	1				
4	2		1				16	16	3	10	3					
7	7	1					13	13	7	6						





STANFORD UNIVERSITY LIBRARY

To avoid fine, this book should be returned on
or before the date last stamped below

JAN 7 1954

Stanford University Libraries



3 6105 024 602 836

STANFORD UNIVERSITY LIBRARIES
STANFORD AUXILIARY LIBRARY
STANFORD, CALIFORNIA 94305-6004
(650) 723-9201
salcirc@sulmail.stanford.edu
All books are subject to recall.
DATE DUE

OCT 10 2001
JAN 07 2002

